

Service Manual

Telephone Equipment

KX-TC911LA-B

(for Latin America)

Simplified

900MHz Cordless Phone

Black Version

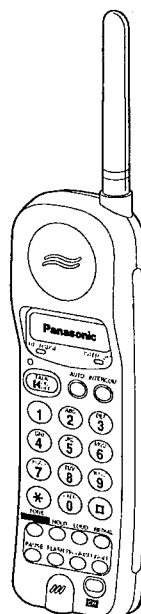
⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Please use this manual together with the original Service Manual for model KX-TC911-B order No. KM49804245C1. This Service Manual indicates the main differences between: Original KX-TC911-B and KX-TC911LA-B for Latin America.



(Base Unit)



(Portable Handset)

Panasonic

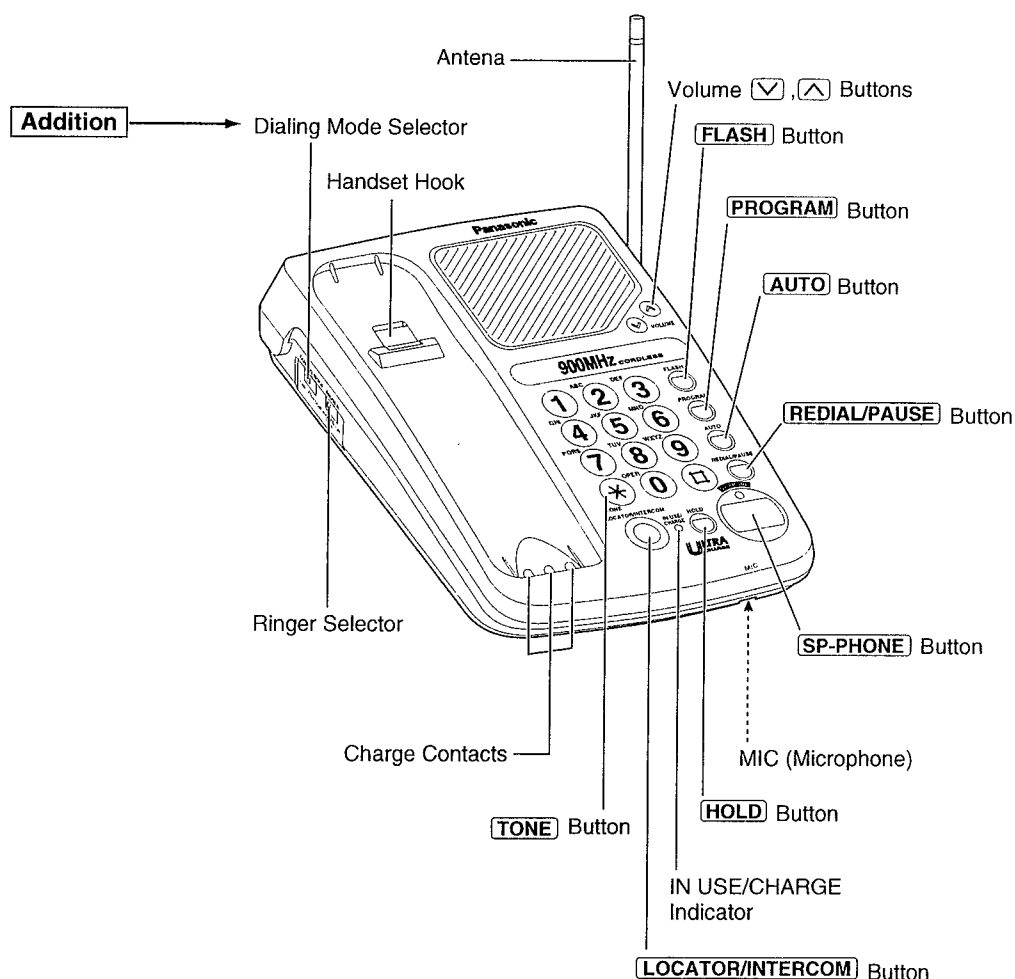
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KX-TC911LA-B

■ PARTS COMPARISON TABLE (Change from original pages 44~50)

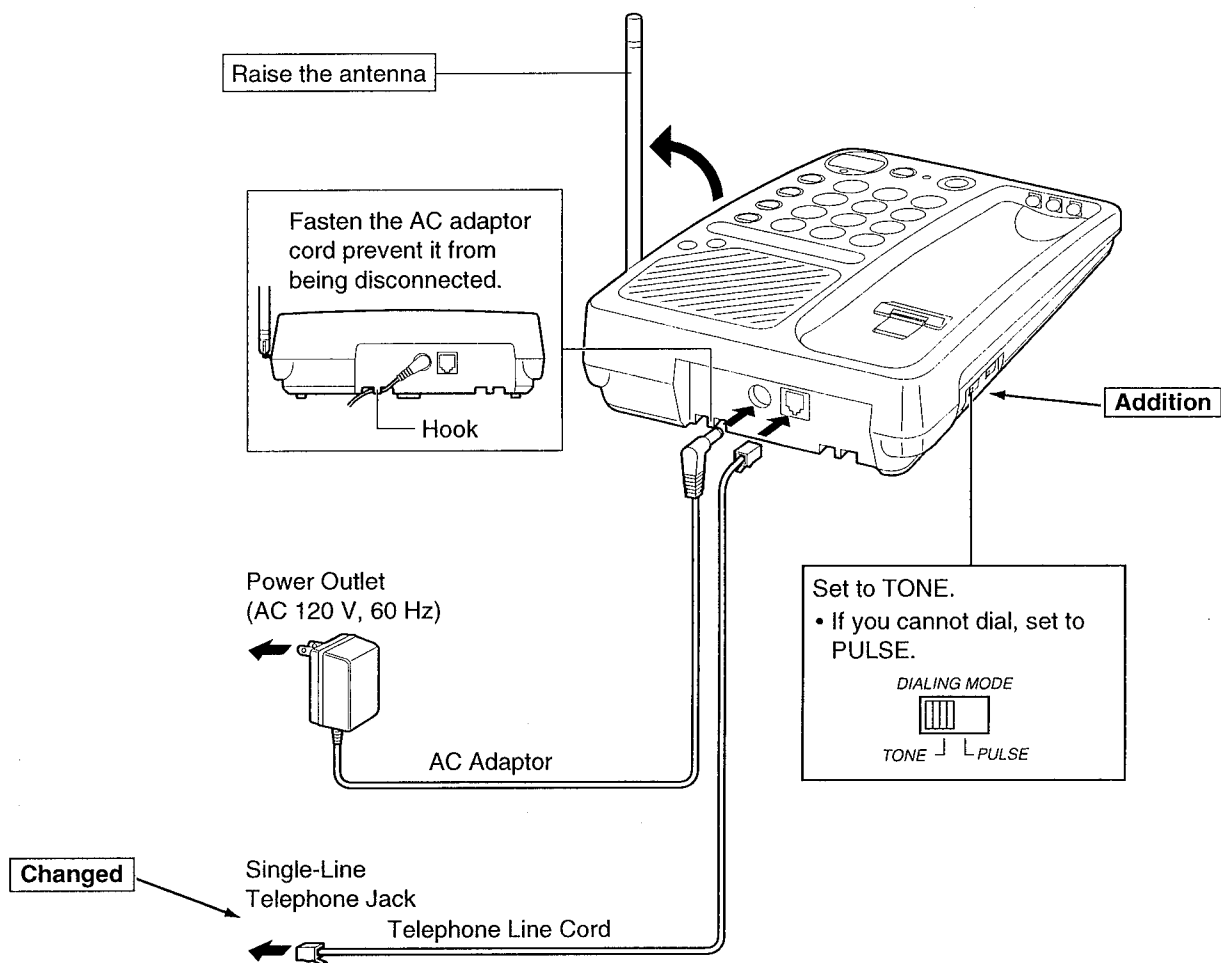
Ref. No.	Part No.		Part Name & Description	Pcs/ Set	Remarks
	KX-TC911-B	KX-TC911LA-B			
Base Unit					
2	PQYF10126J1	PQYF10126U1	Lower Cabinet	1	
8	PQGT13230Z	PQGT13160Z	Name Plate	1	
PCB1	PQWP1TC911BH	PQWPTC911LAH	P.C.Board Ass'y (RTL)	1	
DC,DD	-----	MA110	Diode (Si)	2	Addition
S301	-----	PQSS2A27W	Switch	1	Addition
R323	-----	PQ4R10XJ103	10kΩ, Resistor	1	Addition
R324	-----	PQ4R10XJ472	4.7kΩ, Resistor	1	Addition
Portable Handset					
102	PQKF10248Z1	PQKF10248W1	Cabinet Cover	1	
114	-----	PQGT13161Z	Name Plate	1	Addition
Accessories					
A5	PQQW11914Z	PQQW11941Z	Quick Reference Guide (for Portuguese)	1	
A6	PQQX11891Z	PQQX11941Z	Instruction Book (for Spanish)	1	
Packing Materials					
P5	PQPK12489Z	PQPK12536Z	Gift Box	1	

■ LOCATION OF CONTROLS (Change from original page 3)



(Model KX-TC911LA-B)

■ CONNECTION TO A TELEPHONE LINE (Change from original page 4)

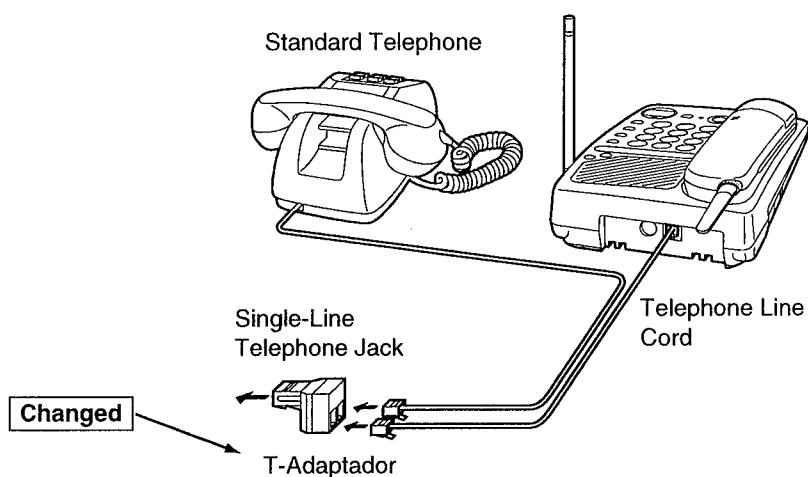


Notes:

- USE ONLY WITH Panasonic AC ADAPTOR KX-TCA1-G.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)

(Model KX-TC911LA-B)

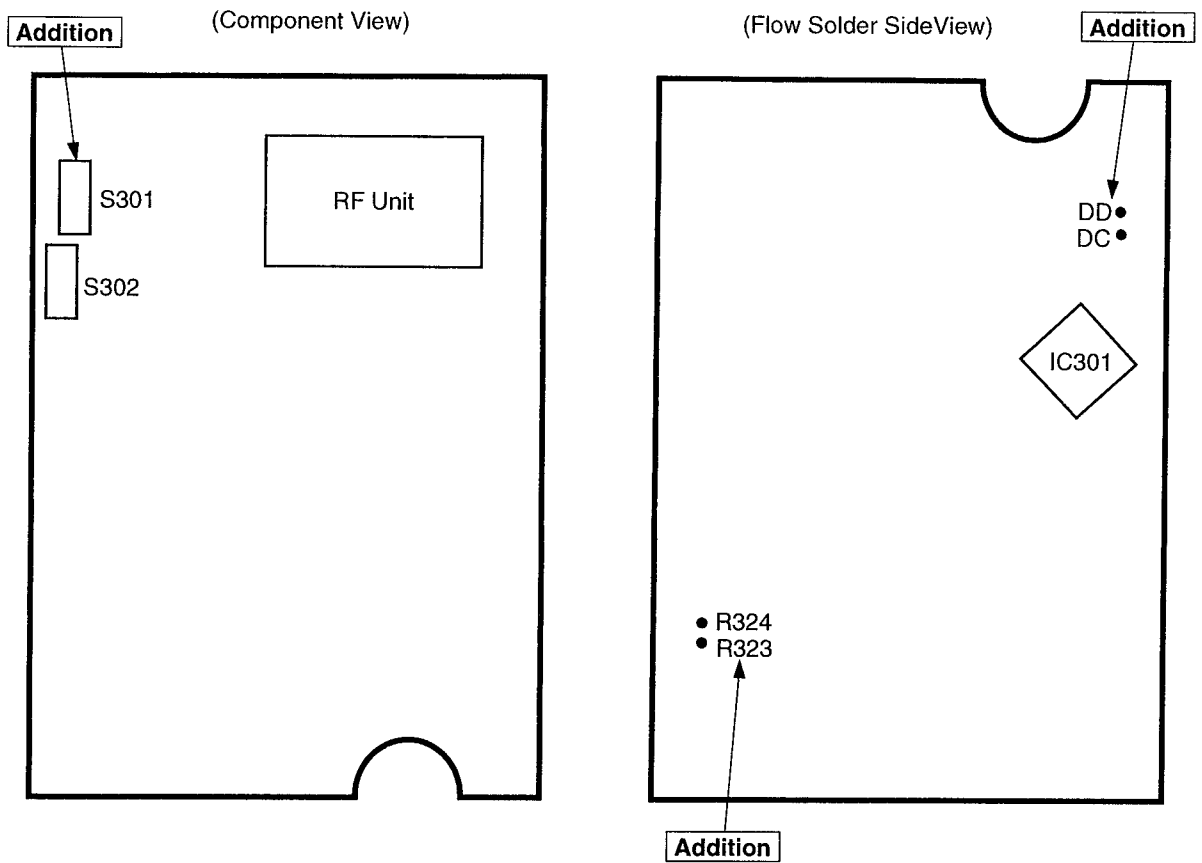
Adding Another Phone



(Model KX-TC911LA-B)

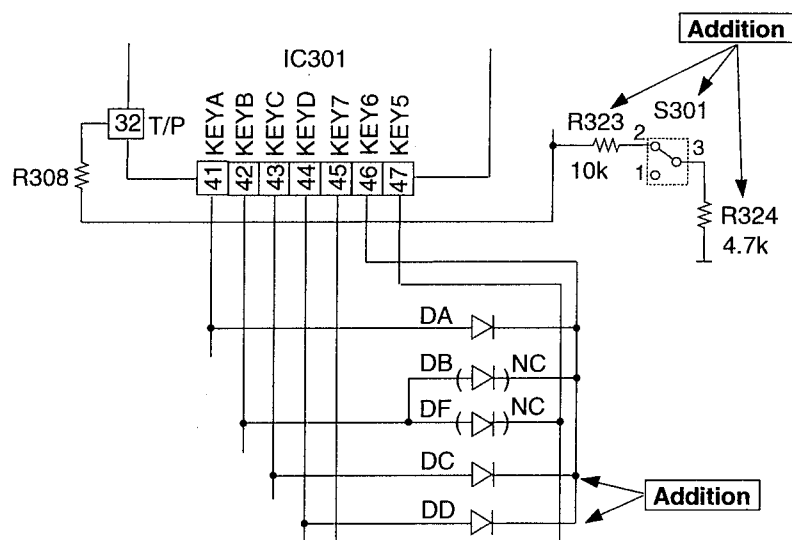
KX-TC911LA-B

■ CIRCUIT BOARD (BASE UNIT) [Change from original page 24]



(Model KX-TC911LA-B)

■ SCHEMATIC DIAGRAM (BASE UNIT) [Change from original page 25]



(Model KX-TC911LA-B)

Service Manual

900MHz Cordless Phone

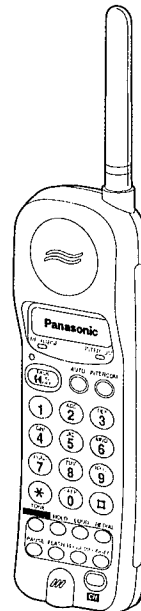
Telephone Equipment

KX-TC911-B KX-TC911-W

(for U.S.A.)



(Base Unit)



(Portable Handset)

■ SPECIFICATIONS

	Base Unit	Portable Handset
Power Source:	AC Adaptor (KX-TCA1-G)	Rechargeable Ni-Cd battery
Receiving Frequency:	30 channels within 926.1~927.55 MHz	30 channels within 902.1~903.55 MHz
Receiving Method:	Double super heterodyne	Double super heterodyne
Transmitting Frequency:	30 channels within 902.1~903.55 MHz	30 channels within 926.1~927.55 MHz
Oscillation Method:	PLL synthesizer	PLL synthesizer
Detecting Method:	Quadrature Discriminator	Quadrature Discriminator
Tolerance of OSC Frequency:	± 3.6 kHz	± 3.6 kHz
Modulation Method:	F3 (frequency modulation)	F3 (frequency modulation)
ID Code:	20-bit	20-bit
Dial Mode:	Tone (DTMF)/Pulse	Tone (DTMF)/Pulse
Redial:	Up to 30 digits	Up to 30 digits
Speed Dialer:	Up to 16 digits	Up to 16 digits
Power Consumption:		21 days at Standby, 6 hours at Talk
Dimension (H×W×D):	2 9/32" × 6 13/16" × 8 15/32" (58 × 173 × 215 mm)	10 13/32" × 2 1/8" × 1 11/32" (244 × 54 × 60 mm)
Weight	1.18 lbs. (536 g) with spare battery	0.54 lbs. (244g) with battery

Design and specifications are subject to change without notice.

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When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

TABLE OF CONTENTS

STANDARD BATTERY LIFE	2	SCHEMATIC DIAGRAM (Portable Handset)	26
LOCATION OF CONTROLS	3	CIRCUIT BOARD (Portable Handset)	27
CONNECTION TO A TELEPHONE LINE	4	BLOCK DIAGRAM (Base Unit)	28
NEW OPERATION	5, 6	NEW CIRCUIT OPERATION (Base Unit)	28~32
DISASSEMBLY INSTRUCTIONS	7	BLOCK DIAGRAM (Portable Handset)	33
ADJUSTMENT (Portable Handset)	8~11	NEW CIRCUIT OPERATION (Portable Handset)	34~37
ADJUSTMENT (Base Unit)	12~14	TROUBLESHOOTING GUIDE	38~40
HOW TO CHECK THE RF UNIT	15, 16	CABINET AND ELECTRICAL PARTS	
CPU DATA (Base Unit)	17	LOCATION (Base Unit)	41
CPU DATA (Portable Handset)	18	CABINET AND ELECTRICAL PARTS	
EXPLANATION OF CPU DATA COMMUNICATION	19~22	LOCATION (Portable Handset)	42
FREQUENCY TABLE	22	ACCESSORIES AND PACKING MATERIALS	43
HOW TO REPLACE FLAT PACKAGE IC	23	FIXTURES AND TOOLS	43
CIRCUIT BOARD (Base Unit) (Operational P.C.B.)	23	REPLACEMENT PARTS LIST (Base Unit)	45~47
CIRCUIT BOARD (Base Unit) (Main P.C.B.)	24	REPLACEMENT PARTS LIST (Portable Handset)	48~50
SCHEMATIC DIAGRAM (Base Unit)	25		

STANDARD BATTERY LIFE

If your Panasonic battery is fully charged;

While in use (TALK)	Up to about 6 hours
While not in use (Stand-By)	Up to about 21 days

- Battery life may vary depending on usage conditions and ambient temperature.
- **Clean the handset and base unit charge contacts with a soft dry cloth once a month.**
Clean more often if the unit is subject to grease, dust or high humidity. If not, the battery may not charge properly.
- If the battery is fully charged, you do not have to place the handset on the base unit until the RECHARGE indicator flashes. This will maximize the battery life.
- The battery cannot be overcharged.

LOCATION OF CONTROLS

Base Unit

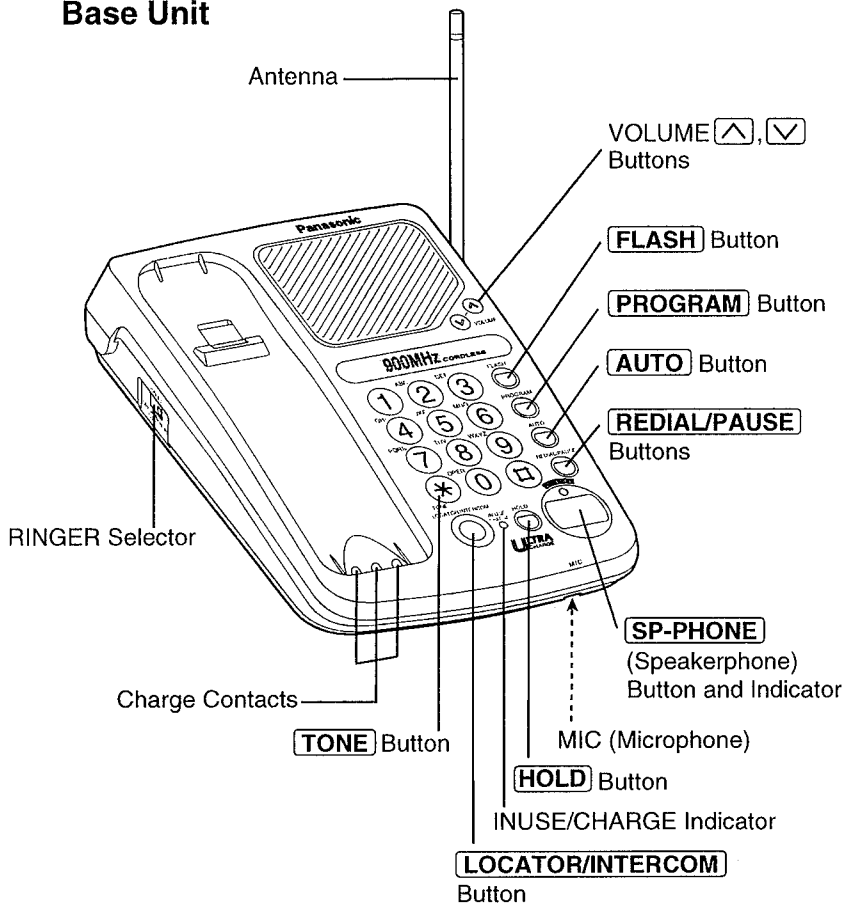


Fig.1

Portable Handset

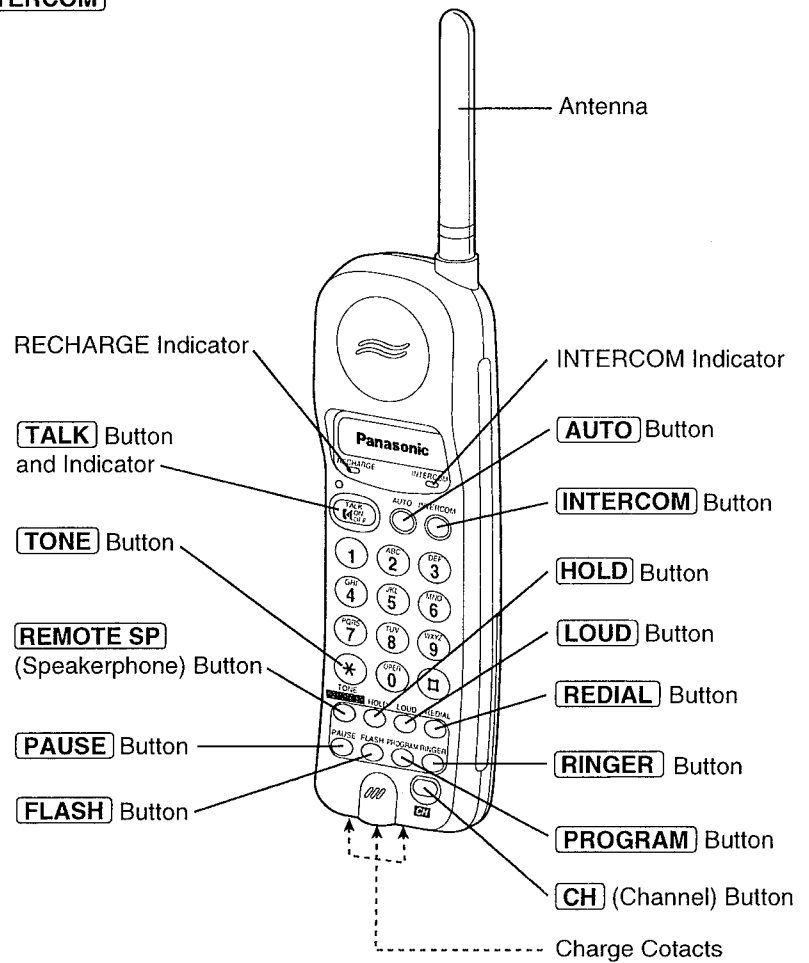
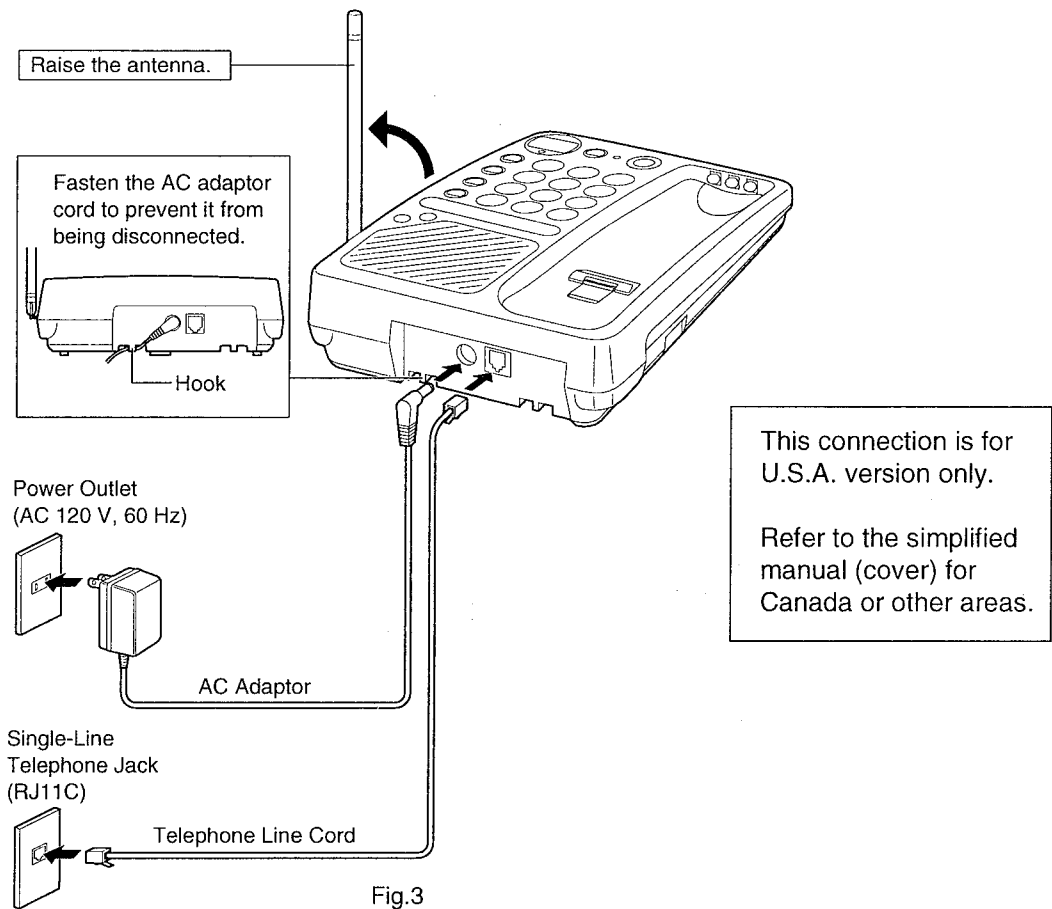


Fig.2

CONNECTION TO A TELEPHONE LINE



Notes:

- USE ONLY WITH Panasonic AC ADAPTOR KX-TCA1-G.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use.)

Adding Another Phone

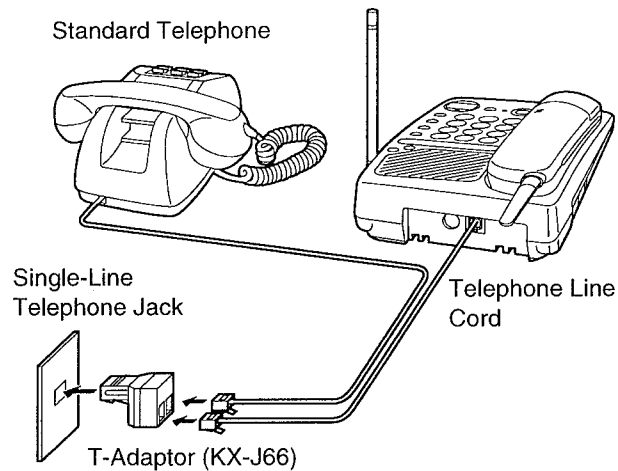


Fig.4

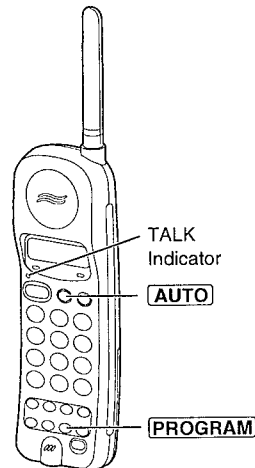
NEW OPERATION

Selecting the Dialing Mode

You can program the dialing mode by using the handset near the base unit. If you have touch tone service, set to TONE. If rotary service is used, set to PULSE. The factory preset is TONE.

The TALK and SP-PHONE indicator lights must be off before programming.

- 1 Press **PROGRAM**.
 - The TALK indicator flashes.
- 2 press **AUTO**.
- 3 To select PULSE, press **#** twice.
OR
To select TONE, press **X** twice.
- 4 When finished, press **PROGRAM**.



Simultaneous Keypad Dialing

You can use the base unit like a standard telephone. After pressing **TALK** to make a call with the handset near the base unit, you can also dial using the base unit keypad.

- 1 Handset:
Press **TALK**.
- 2 Base unit:
Dial a telephone number while hearing a dial tone with the handset.
 - When the other party answers, talk using the handset.
- 3 Handset:
To hang up, press **TALK** or place the handset on the base unit.



Useful information

You can enter numbers using the base unit keypad during a call with the handset. For example, to access an answering service, electronic banking service, etc.

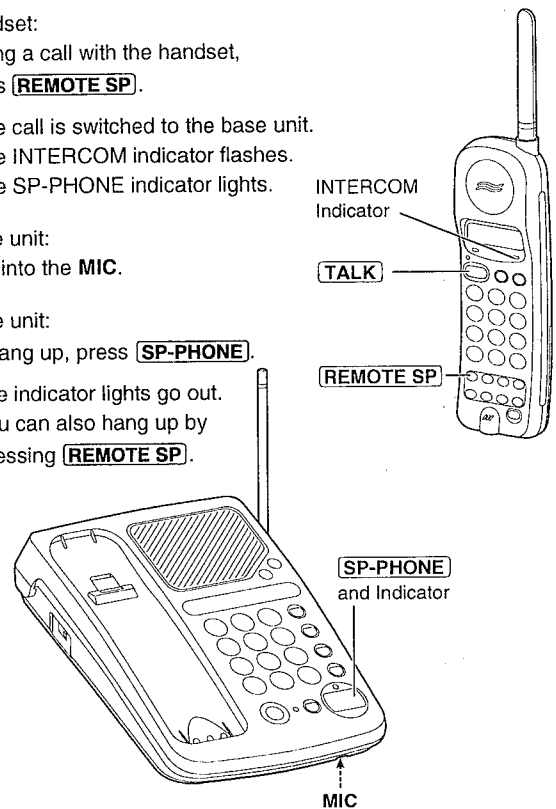
1. Handset:
Press **TALK**.
2. Handset:
Dial a telephone number.
 - You may also dial with the base unit keypad.
3. Base unit:
Enter the required numbers while listening to the pre-recorded instructions.
4. Handset:
To hang up, press **TALK** or place the handset on the base unit.

Simultaneous Keypad Dialing is available only after pressing **REMOTE SP** or **TALK**.

Remote Speakerphone

You can switch a call with the handset to the speakerphone easily.

- 1 Handset:
During a call with the handset, press **REMOTE SP**.
 - The call is switched to the base unit.
 - The INTERCOM indicator flashes.
 - The SP-PHONE indicator lights.
- 2 Base unit:
Talk into the MIC.
- 3 Base unit:
To hang up, press **SP-PHONE**.
 - The indicator lights go out.
 - You can also hang up by pressing **REMOTE SP**.



When you use **REDIAL/PAUSE** or **REDIAL**, dial a stored number, etc., press **REMOTE SP** after dialing is completed.

You can turn on the base unit speakerphone by using the handset as a remote control.

Making calls with the remote speakerphone

1. Handset:
Press **REMOTE SP**.
2. Handset:
Dial a telephone number.
 - You may also dial with the base unit keypad.
3. Base unit:
Talk into the MIC.
4. Handset:
To hang up, press **REMOTE SP**.
 - You may also hang up by pressing **SP-PHONE**.

When you redial

A number dialed with the handset keypad is saved in the handset. A number dialed with the base unit keypad is saved in the base unit.

To switch to the handset (while using the remote speakerphone)

Press **TALK**.

- You can continue the conversation using the handset.
- To hang up, press **TALK** or place the handset on the base unit.

When you use **REDIAL/PAUSE** or **REDIAL**, dial a stored number, etc., press **TALK** after dialing is completed.

Answering calls with the remote speakerphone

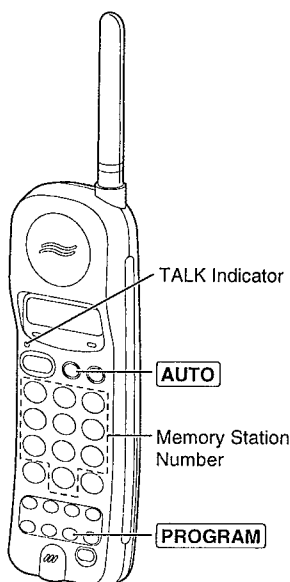
1. Handset:
Press **[REMOTE SP]**.
2. Base unit:
Talk into the **MIC**.
3. Handset:
To hang up, press **[REMOTE SP]**.
• You may also hang up by pressing **[SP-PHONE]**.

Speed Dialer (Handset)

Storing Phone Numbers in Memory

You can store up to 10 phone numbers in the handset. The dialing buttons (0 to 9) function as memory stations. **The TALK indicator light must be off before programming.**

- 1 Press **[PROGRAM]**.
• The TALK indicator flashes.
- 2 Enter a phone number up to 16 digits.
• If you misdial, press **[PROGRAM]** to end storing, then restart from step 1.
- 3 Press **[AUTO]**.
- 4 Press a memory station number (0 to 9).
• A confirmation tone sounds.*
• To store other numbers, repeat steps 1 through 4.



*What the confirmation tone means

- 1 beep: The new number is stored.
- 2 beeps: The number is the same as the previously stored one.

To erase a stored number

Press **[PROGRAM]** ➔ **[AUTO]** ➔ the memory station number (0 to 9) for the phone number to be erased.

Dialing a Stored Number

- 1 Press **[TALK]**.
- 2 Press **[AUTO]**.
- 3 Press the memory station number (0 to 9).
• The stored number is dialed.

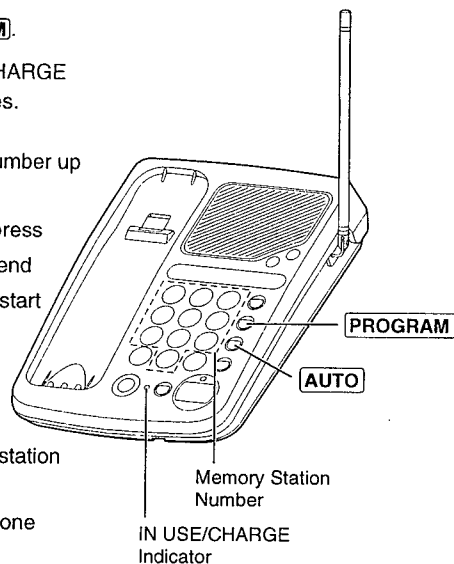
• Numbers stored in the handset can only be dialed by the handset.

Speed Dialer (Base Unit)

Storing Phone Numbers in Memory

You can store up to 10 numbers in the base unit. The dialing buttons (0 to 9) function as memory stations. **The SP-PHONE indicator light must be off.**

- 1 Press **[PROGRAM]**.
• The IN USE/CHARGE indicator flashes.
- 2 Enter a phone number up to 16 digits.
• If you misdial, press **[PROGRAM]** to end storing, then restart from step 1.
- 3 Press **[AUTO]**.
- 4 Press a memory station number (0 to 9).
• A confirmation tone sounds.*
• To store other numbers, repeat steps 1 through 4.



*What the confirmation tone means

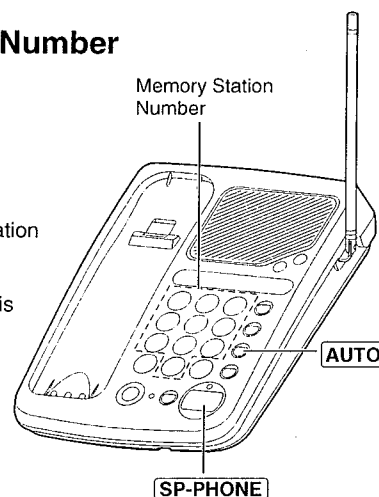
- 1 beep: The new number is stored.
- 2 beeps: The number is the same as the previously stored one.

To erase a stored number

Press **[PROGRAM]** ➔ **[AUTO]** ➔ the memory station number (0 to 9) for the phone number to be erased.

Dialing a Stored Number

- 1 Press **[SP-PHONE]**.
- 2 Press **[AUTO]**.
- 3 Press the memory station number (0 to 9).
• The stored number is dialed.



• Numbers stored in the base unit can only be dialed by the base unit.

DISASSEMBLY INSTRUCTIONS

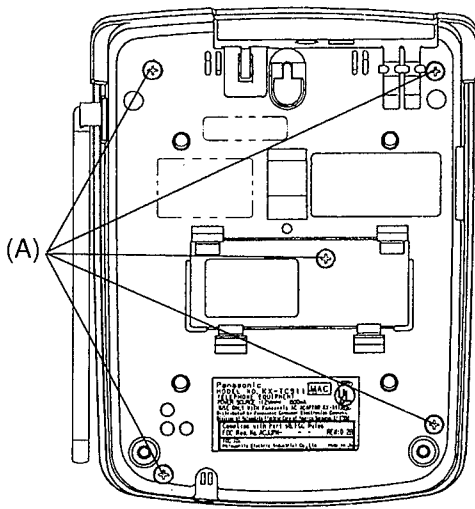
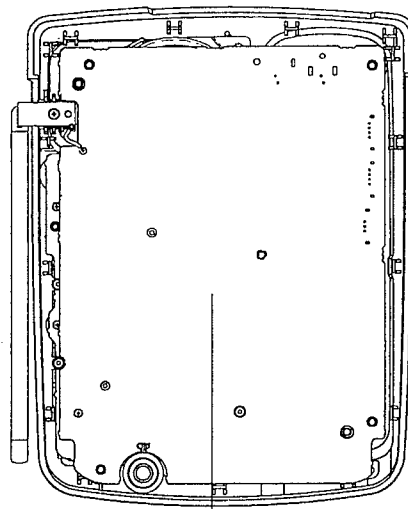


Fig. 5



Remove the P.C.Board

Fig. 6

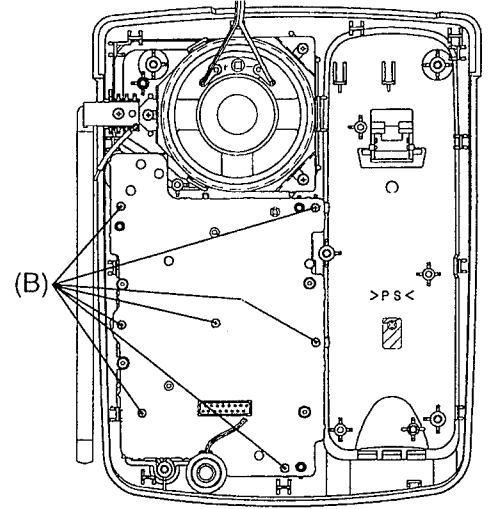


Fig. 7

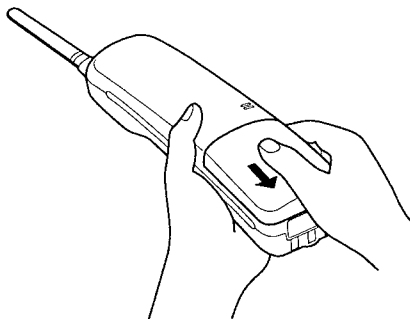


Fig. 8

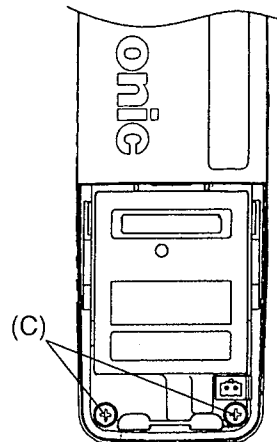


Fig. 9

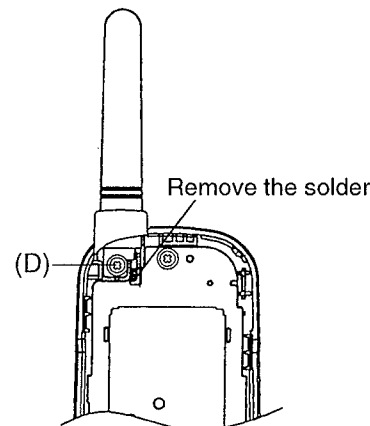
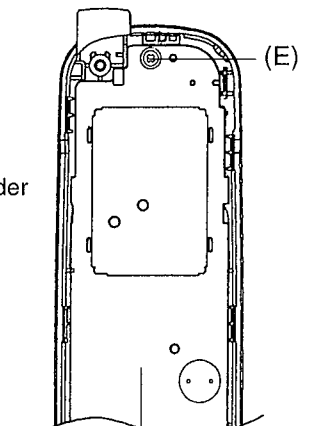


Fig. 10



Remove the P.C.Board

Fig. 11

Ref No.	Procedure	Shown in Fig. -	To Remove	Remove
1	1	5	Lower Cabinet	Screws (3×14) (A)×5
2	1, 2	6	Main P.C. Board	Remove the P.C.Board
3	1~3	7	Operation P.C. Board	Screws (2.6×10) (B)×7
4	4	8	Battery Cover	Remove the Battery Cover
5	4, 5	9	Rear Cabinet	Screws (2.6×12) (C)×2
6	4~6	10	Antenna	Screw (2.6×12) (D)×1
7	4~7	11	Main P.C. Board	Screw (2.6×12) (E)×1

ADJUSTMENT

OBJECTIVE

This procedure will enable the technician to make adjustments to the KX-TC911-B/KX-TC911-W PORTABLE HANDSET and BASE UNIT.

GENERAL INFORMATION

This procedure has 2 sections. The first section instructs the technician on how to align the PORTABLE HANDSET. We recommend aligning the PORTABLE HANDSET first, since you will need the PORTABLE HANDSET to align the BASE UNIT. The second section aligns the BASE UNIT. You can use either section separately, or together to align the entire cordless phone unit.

At the beginning of each section, you will find a preparation procedure instructing you on how to prepare the unit to the point of placing the unit in TEST mode. Please follow this procedure to insure proper alignment.

Each section's procedure consists of Adjustment Items adjusting one specific variable hardware component.

Each Item lists the equipment needed, how to connect and setup the equipment, how to make the adjustment, and how to verify the adjustment if necessary.

Before the actual procedure, you will find a procedure detailing how to place that part in TEST mode. You will have to perform this procedure before each individual Adjustment Item.

Once aligned, please remove all equipment connections and solder points, and reassemble the unit. As a final check, power up the phone and check for PORTABLE HANDSET linking with the BASE UNIT.

EQUIPMENT

1. Radio Tester : Marconi Model 2295A or later.
2. 4.5 digit Digital Multimeter : B&K Model 2833 or compatible.
3. Oscilloscope, single or dual channel : Panasonic VP-5512P100 or compatible.
4. Telephone Analyzer : B&K Model 1050 or compatible.
5. DC Power Supply, capable of supply 3.9V DC at 100mA NOTE : only needed if Telephone Analyzer does not have DC VOLTS output available.
6. High Frequency Attenuator, 10dB or greater.
7. Corded Telephone.
8. High Frequency Cable : BNC end to open end.
9. Audio Cable : BNC end to alligator clip end.
10. High Frequency Adjustment Tool:
11. Isolation Capacitors, quantity of 2, 10 μ F maximum, 50V DC or greater.
12. Soldering Iron, solder, and various tools.

PORTABLE HANDSET PREPARATION

Please perform the following steps to prepare the PORTABLE HANDSET for alignment. Please refer to the PORTABLE HANDSET REFERENCE DRAWING for connection and test point locations.

1. Remove battery cover and battery.
2. Remove both screws at the case bottom.
3. Grabbing hold of the back near the bottom, gently pry off the back of the case.
4. Remove the antenna mounting screw. While heating the antenna solder connection, pull out the antenna.
5. Remove the top P.C.Board mounting screw.
6. Unsolder both speaker connections on P.C.Board.
7. Remove the PORTABLE HANDSET P.C.Board.
8. Remove the keypad membrane.
9. Solder High Frequency Cable open end to ANT and RF GND points.
10. Using the Digital Multimeter, measure DC VOLTS output on the Telephone Analyzer. Adjust the output voltage to 3.9V DC.
11. Solder battery connection wires at the points shown in the PORTABLE HANDSET REFERENCE DRAWING. Solder the positive lead to TP-VDD, towards the component side of the P.C.Board. Solder the negative lead to the TP-Vss. **DO NOT APPLY POWER TO THE PORTABLE HANDSET AT THIS TIME!!!!!!**
12. Solder a small, insulated piece of wire to **GND** as well.
13. Solder 1 isolation capacitor's positive lead to **SP+** test point (TP4). When soldering, keep the lead close to the P.C.Board as possible since you will lay the keypad membrane over part of this lead.
14. Solder a small, short, insulated wire to **MIC** test point (TP8).
15. Lay the keypad membrane over the keypad switch contacts.

SYMPTOM/REMEDY TABLE

If you have one of the listed symptoms, please refer to this table and make the appropriate adjustments.

SYMPTOM	REMEDY
Speaker level is unstable	Adjust Item (A).
Does not link with BASE UNIT	Adjust Items (B) and (C).
Tx sound is unstable	Adjust Item (D).

PORTABLE HANDSET ADJUSTMENT PREPARATION

Please perform the following procedure before starting the Adjustment Procedure. You only have to perform this procedure only once to complete all Items, but you will have to perform this procedure to make an individual Adjustment Item.

1. You will need all equipment listed in the Item's EQUIPMENT section.
2. Setup all equipment as specified in the Item's PROCEDURE section SETUP portion.
3. Apply power to the PORTABLE HANDSET, and press TALK key.
4. Press 5, 8 and 0 keys at the same time.
5. Release the 3 keys. You should hear the PORTABLE HANDSET beep. If you do not hear a beep, remove the power from the PORTABLE HANDSET and repeat the last 2 steps.
6. Press the **INTERCOM** key, then press the **TALK** key. PORTABLE HANDSET should now be in TEST MODE (CH 1 TALK). The IN USE should be on. If the PORTABLE HANDSET is not in TEST MODE, remove the power and repeat the last 3 steps.
7. Remove the keypad membrane and lay it aside to prevent pressing some button by mistake during alignment.

ADJUSTMENT PROCEDURE

ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE
(A) SP Output	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 902.1000 MHz LEVEL 60 dBμV SET MOD FREQ 1.000 kHz LEVEL 6.000 kHz High Frequency Cable to left RF Connector. Audio Cable positive lead to isolation capacitor, negative lead to GND , BNC end to AF INPUT connector.	Adjust VR203 until AF VOLTS equals -35 dBV +/-1 dBV Note This voltage reading is with no speaker or load attached to the PORTABLE HANDSET P.C.Board.

KX-TC911-B/KX-TC911-W

ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE
(B) 20dB Electric Detection (RX sensitivity confirmation and squelch adjustment)	<p>Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 902.1000 MHz LEVEL 60 dBμV SET MOD FREQ 1.000 kHz LEVEL 6.000 kHz One end of BNC cable to left RF connector, other end to Attenuator Input. Audio Cable positive lead to isolation capacitor, negative lead to GND, BNC end to AF INPUT connector.</p> <p>Oscilloscope SETUP X1 probe connected to INPUT 1. Probe ground connected to GND. TIME/DIV 1ms VOLT/DIV 1V Auto trigger</p> <p>Attenuator SETUP High Frequency Cable to Attenuator Output.</p>	<p>On Marconi, press SINAD until the display shows the SINAD value and press dB. Then press RF GEN and LEVEL. Lower RF GEN LEVEL at SINAD 12 dB and confirm that RF GEN LEVEL is less than 5 dBμV. When level is more than 5 dBμV, change RF unit.</p> <p>Attach the oscilloscope probe to 20 dB test point. When RF GEN LEVEL is set at +8 dBμV, confirm that the signal of 20 dB TEST POINT is Low. After that, set RF GEN LEVEL at -7 dBμV, and confirm that the signal of 20 dB TEST POINT is High. When level is NG, change RF unit.</p>
(C) MIC Input (MIC Modulation)	<p>Marconi SETUP Put in Transmitter Test mode. AF GEN FREQ 1.000 KHz LEVEL 15 mV Connect High Frequency Cable to right RF connector. Connect Audio Cable positive lead to MIC, negative lead to GND, BNC end to AF GEN OUTPUT.</p>	Adjust VR202 until Marconi MOD LEVEL equals 7 kHz +/- 0.5 kHz .
(D) Standard Frequency	<p>Marconi SETUP Put in Transmitter Test mode. AF GEN FREQ 1.000 kHz LEVEL 21 mV Connect High Frequency Cable to right RF connector. Connect Audio Cable positive lead to MIC, negative lead to GND, BNC end to AF GEN OUTPUT</p>	<p>Check Marconi TX FREQ equals 926.100 MHz +/-0.003 MHz. When value is overed 926.100 MHz +/-0.003 MHz, change RF unit.</p> <p>Note This Item's setup is exactly the same as Item (C). If you have done Item (C), simply look at TX FREQ and make the adjustment.</p>

Once aligned, please perform the following procedure.

1. Disconnect all equipment and solder connections. Use solder wick to clean up any solder you added.
2. Install the keypad membrane on top of the PORTABLE HANDSET keys.
3. Install the PORTABLE HANDSET P.C.Board.
4. Solder speaker wires back onto the P.C.Board observing correct polarity.
5. If you will align Item (C) RX Input in BASE UNIT, then solder a short wire across the MIC leads. Remember to unsolder this wire after you completed the BASE UNIT alignment.
6. Insert antenna into the case.
7. Install antenna and top P.C.Board mounting screws and solder antenna connection.
8. Install case back and bottom mounting screws.
9. DO NOT INSTALL THE BATTERY AT THIS TIME!!!!!!

PORTABLE HANDSET REFERENCE DRAWING

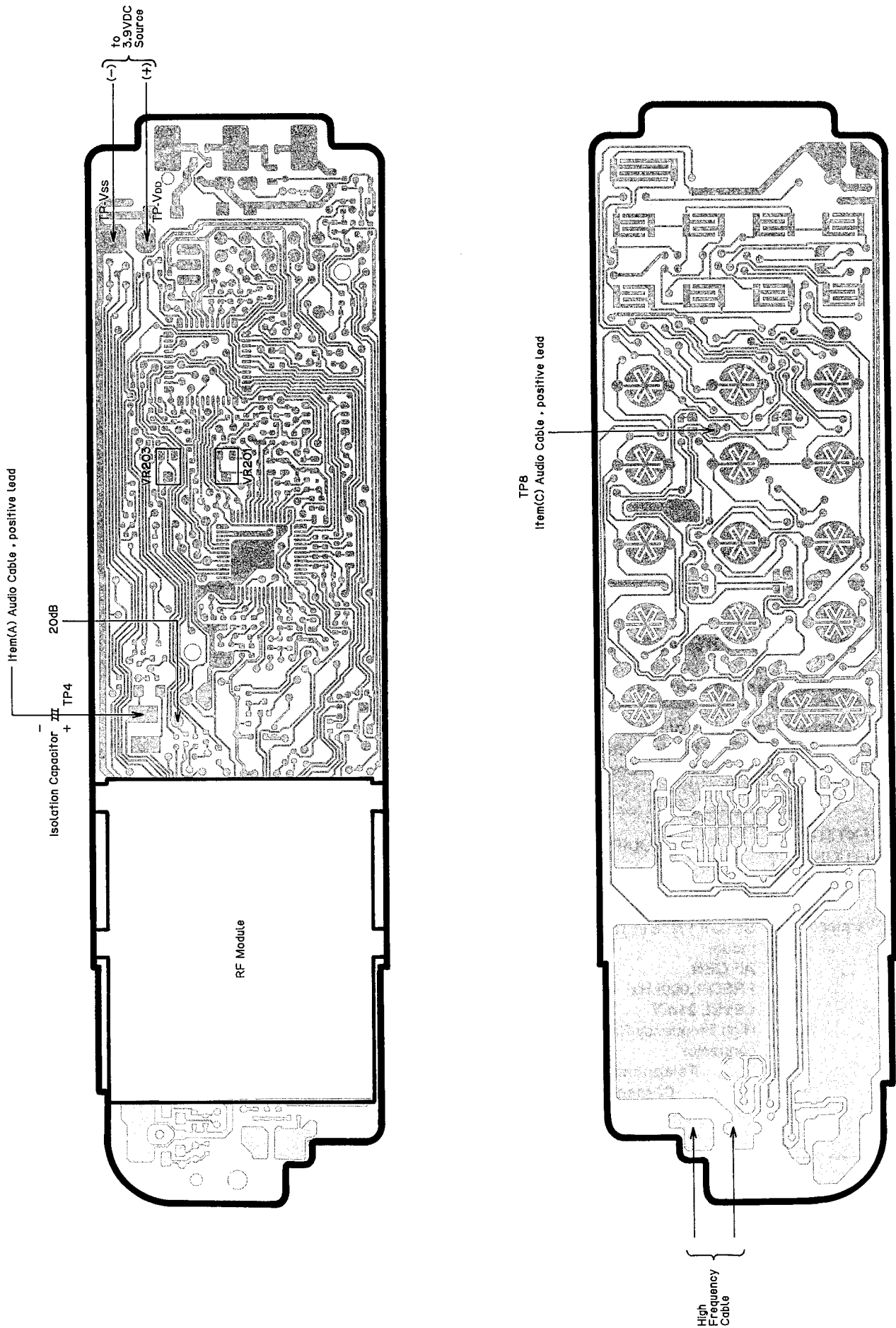


Fig. 12

BASE UNIT PREPARATION

Please prepare the BASE UNIT before performing any adjustment procedures. Refer to the BASE UNIT REFERENCE DRAWING for connection and test point locations.

1. Unscrew all 5 screws from bottom of cabinet. Remove cabinet bottom.
2. Unsolder antenna wire at RF module.
3. Solder a test mode diode **DA** as shown on the BASE UNIT REFERENCE DRAWING.
4. Solder one isolation capacitor's positive lead to the main P.C.Board **TIP** point and the other isolation capacitor's positive lead to the main P.C.Board **RING** point.
5. Connect the Audio Cable, positive lead to the **TIP** isolation capacitor's free lead, the negative lead to the **RING** isolation capacitor's free lead. Do not connect the BNC end of the cable.
6. Connect the Telephone Analyzer **PHONE TEST JACK #1** to the BASE UNIT P.C.Board phone jack.
7. Connect the corded telephone to the Telephone Analyzer **PHONE TEST JACK #2**.
8. Remove main P.C.Board from cabinet top and place beside cabinet.
9. Solder High Frequency Cable open end to ANT and RF GND as specified in BASE UNIT REFERENCE DRAWING.

SYMPTOM/REMEDY TABLE

If you have one of the listed symptoms, please refer to this table and make the appropriate adjustments.

SYMPTOM	REMEDY
Transmission sound to PORTABLE HANDSET receiver is unstable	Adjust Items (A) and (B).
Does not link with PORTABLE HANDSET	Adjust Items (C) and (D).

BASE UNIT ADJUSTMENT PREPARATION

Please perform the following steps to prepare the BASE UNIT for the Adjustment procedure.

1. Connect P.C.Board to all equipment as specified in **PROCEDURE** section, **SETUP** portion.
2. Connect AC Adaptor to AC Jack of BASE UNIT main P.C.Board.
3. Press **LOCATOR/INTERCOM** button twice. BASE UNIT P.C.Board should be in TEST MODE (CH1 TALK). If unit is not in TEST MODE, remove power from P.C.Board and repeat last step.

ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE
(A) Standard Frequency	Marconi SETUP Place in Transmitter Test mode. AF GEN FREQ 1.000kHz LEVEL 21mV High Frequency Cable to right RF connector. Telephone Analyzer Corded Phone Take phone off hook	Check Marconi TX FREQ equals 902.100 MHz +/-0.003 MHz . When value is overed 902.100 MHz +/-0.003 MHz , change RF unit. Note This item's setup is exactly the same as Item (C). If you have done Item (C), simply look at TX FREQ on the Marconi and make the adjustment.

ADJUSTMENT ITEM DESCRIPTION	EQUIPMENT	PROCEDURE
(B) TX Output	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 926.1000 MHz LEVEL 60 dB μ V SET MOD FREQ 1.000 kHz LEVEL 5.000 kHz High Frequency Cable to left RF connector. Audio Cable positive lead to TIP isolation capacitor, negative lead to RING isolation capacitor, BNC end to AF INPUT connector. Telephone Analyzer Corded Telephone Take phone off hook	Adjust VR1 until AF VOLTS equals -17.7 dBV +/- 2 dBV Note You do not need to take the corded phone off hook, but you will hear the 1kHz tone. This will insure that your setup is probably working.
(C) RX Input (Line Modulation)	Marconi SETUP Place in Transmitter Test mode. AF GEN FREQ 1.000kHz LEVEL 21mV High Frequency Cable to right RF connector. Telephone Analyzer Corded Phone Take phone off hook KX-TC911-B/KX-TC911-W Portable Handset Placed in TEST mode by inserting battery while pressing 1, 9 and * keys	Adjust VR2 until MOD LEVEL equals 6.5 kHz +/-0.5 kHz Notes You need to place the PORTABLE HANDSET in TEST mode to drown spurious RF signals being picked up at the BASE UNIT. By shorting the MIC leads insures that you are sending an unmodulated RF signal. You need the corded phone off hook to keep the telephone analyzer from sending a dial tone to the unit under test. The dial tone adds to the MOD LEVEL value greatly.
(D) 20dB Electric Detection (RX sensitivity conformation and squelch adjustment)	Marconi SETUP Put in Receiver Test Mode. RF GEN FREQ 926.1000 MHz LEVEL 60 dB μ V SET MOD FREQ 1.000 kHz LEVEL 5.000 kHz One end of BNC cable to left RF connector, other end to Attenuator Input. Audio Cable positive lead to TIP isolation capacitor, negative lead to RING isolation capacitor, BNC end to AF INPUT connector. Oscilloscope SETUP X1 probe connected to INPUT 1. Probe ground connected to GND . TIME/DIV 1ms VOLT/DIV 1V Auto trigger Attenuator SETUP High Frequency Cable to Attenuator Output Telephone Analyzer Corded Phone Take off hook	On Marconi, press SINAD until the display shows the SINAD value and press dB . Then press RF GEN and LEVEL . Lower RF GEN LEVEL at SINAD 12 dB and confirm that RF GEN LEVEL is less than 5 dBμV . When level is more than 5 dB μ V, change RF unit. Attach the oscilloscope probe to 20dB test point. When RF GEN LEVEL is set at +8 dB μ V, confirm that the signal of 20 dB TEST POINT is Low. After that, set RF GEN LEVEL at -7 dB μ V, and confirm that the signal of 20 dB TEST POINT is High. When level is NG, change RF unit.

Once aligned, please reassemble the base unit. Also take off the back of the PORTABLE HANDSET and unsolder the MIC lead short wire if you previously installed it.

BASE UNIT REFERENCE DRAWING

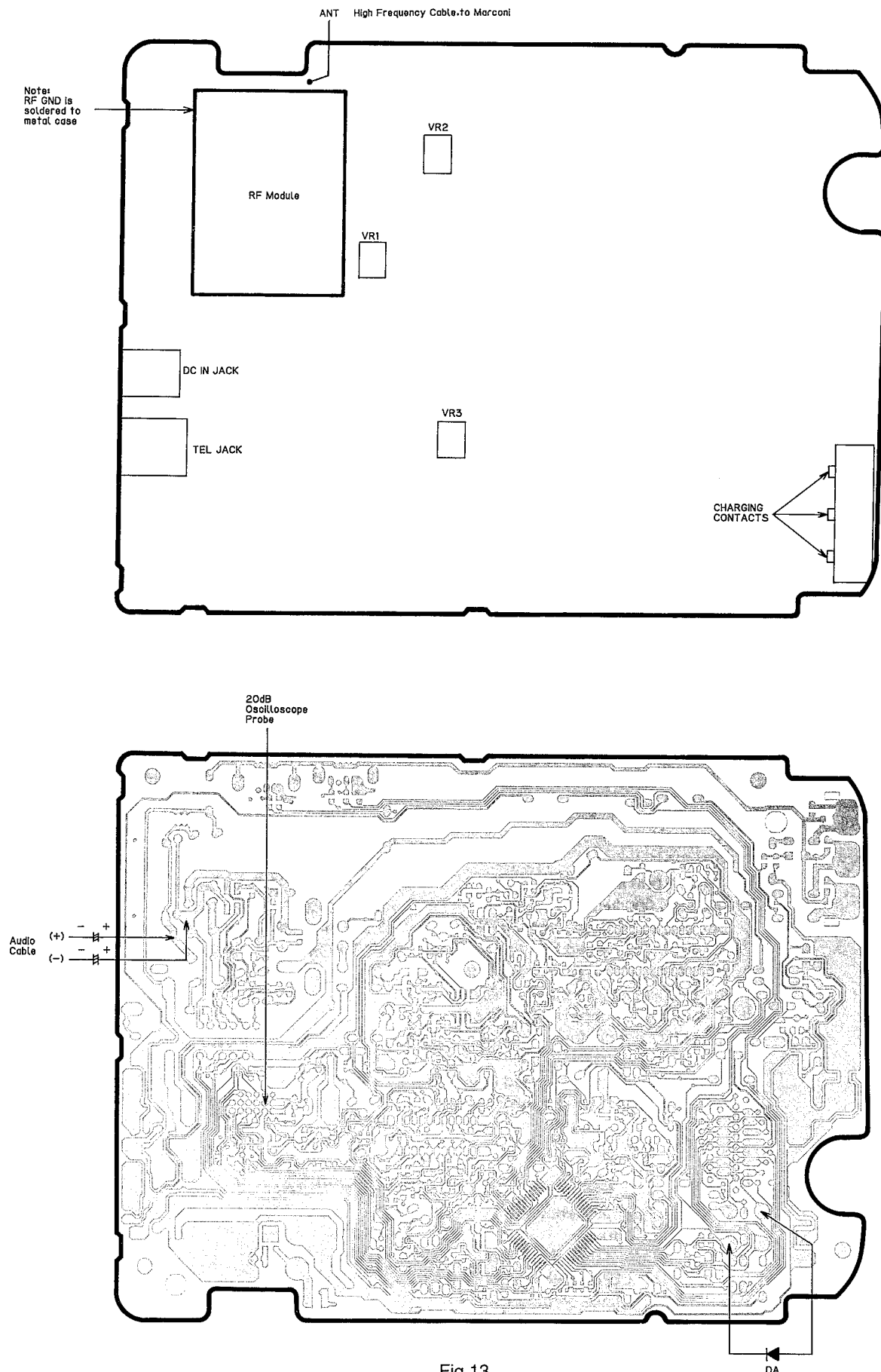


Fig.13

HOW TO CHECK THE RF UNIT

Factory supply only assembled RF unit for base unit and portable handset of KX-TC911-B/KX-TC911-W. (Factory does not supply each parts on RF Unit.)
When checking the RF Unit, refer to pages 15 and 16.

Portable Handset

- 1) Warm up the Marconi Radio Tester for at least 30 minutes to allow internal crystal oscillation to become stable.
- 2) Refer to figures below for portable handset wire connections.
- 3) Disconnect the handset antenna from the PCB. If you allow the antenna to remain and be a load, the readings will be wrong.
- 4) Supply DC 3.9V Handset PCB using a DC power supply.
- 5) Solder RF cable to ANT and GND and connect BNC side to Marconi. Use 100 W max. RF Input.
- 6) Press **TALK**, then press "5", "8" and "0" simultaneously.
- 7) Press **DIRECT** or **INTERCOM**, press **TALK**.

Carrier Frequency Check:

1. Set Marconi to Transmit Test (press **TX TEST** button).
2. Check TX Frequency = **926.100 MHz \pm 3.0 kHz**.
3. When value is off, adjust **VRfreq**.
4. If can't adjust replace RF PCB.

Transmit Power Check:

1. Press **dBm** button on Marconi.
2. Check Marconi TX Power reading. It should equal **-3.5 dBm \pm 4 dBm** (-7.5 dBm ~ +1.5 dBm).
3. When the value is off, adjust **VRpow** to **-3.5 dBm**.
4. If can't adjust replace RF PCB.

Receiving Sensitivity Check:

1. Connect audio cable BNC side to AF INPUT in Marconi and other side to TP-AF and TP-VSS (GND).
2. Set Marconi to **RX TEST** mode. Enter the following setting:
 - (a) Frequency = **902.100 MHz**
 - (b) Level = **60 dB μ V**
 - (c) Set Modulation = **1.000 kHz**
 - (d) Level = **6.000 kHz**
3. Press the **SINAD** button on Marconi until the display shows SINAD value. Press the **dB** button.
4. Press the **RF GEN** and **LEVEL** button.
5. Using the **VARIABLE** knob on Marconi decrease RF GEN LEVEL value until **SINAD** value is **12 dB**.
6. Check the **RF GEN LEVEL**. This should be **less than -2 dB μ V** (+4 dB μ Vemf). If can't adjust replace RF PCB.

Squelch Check:

1. Connect scope probe (X1) lead to TP-20 dB, negative to TP-VSS and BNC end to scope.
2. Set scope to the following condition: TIME/DIV = 1 msec, VOLT/DIV = 1 V
3. Set **RF GEN LEVEL** to **+2 dB μ V** (+8 dB μ Vemf). Check scope voltage is **LOW**.
4. Set **RF GEN LEVEL** to **-13 dB μ V** (-7 dB μ Vemf). Check scope voltage is **HIGH**.
5. When scope does not show above condition, adjust **VRsq** until scope voltage toggles between **LOW** & **HIGH**.
6. When **RF GEN LEVEL** is **-5.5 dB μ V** (+0.5 dB μ Vemf). If can't adjust replace RF PCB.

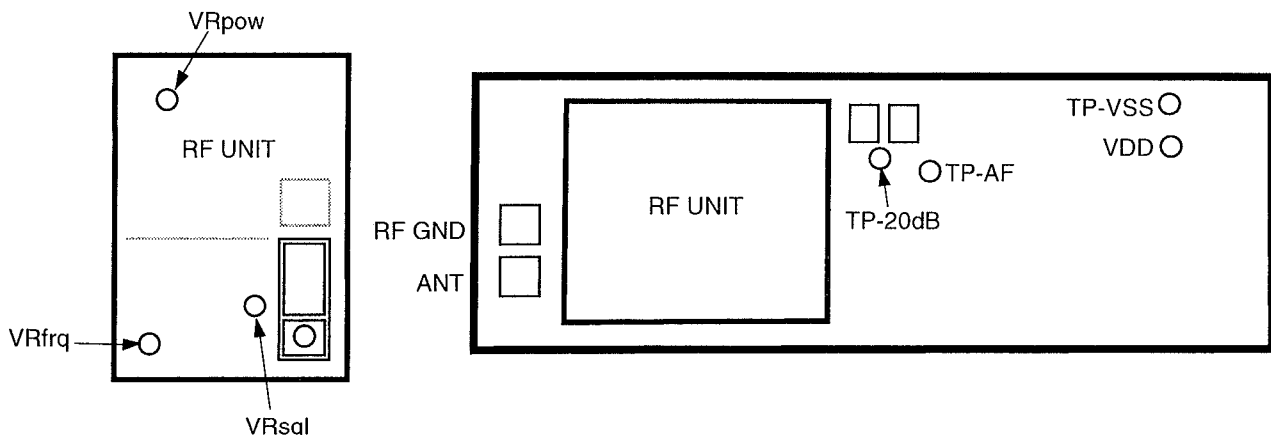


Fig.14

Base Unit

- 1) Please refer to figures below for base unit wire connection.
- 2) Solder wire connections from TEST to TEST COM.
- 3) Connect the AC Adaptor (KX-TCA1-G) to base unit.
- 4) Press LOCATOR twice to set base to test mode.

Carrier Frequency Check:

1. Solder RF cable to ANT and RF GND.
2. Set Marconi to Transmit Test mode by pressing **TX TEST**.
3. Check TX Frequency as shown on CRT. This should be **902.100 MHz \pm 3 kHz**.
4. Adjust value when this is above **902.100 MHz \pm 3 kHz**. If can't adjust replace RF PCB.

Transmit Power Check:

Check **TX POWER** reading equals to **-7 dBm \pm 4 dBm** (reading should -11 dBm ~ -3 dBm).

If reading is given in μ W, press **dB** button.

When value is off, adjust **VRpow** to **-7 dBm**. If can't adjust replace RF PCB.

Receiving Sensitivity Check:

1. Connect audio cable positive lead to TP-AF, negative lead to TP-AGND and BNC end to AF INPUT.
2. Set Marconi to Receiver Test mode by pressing **RX TEST**. Enter the following value:
 - (a) RF Frequency = **926100 MHz**
 - (b) LEVEL = **60 dB μ V**
 - (c) Modulation Frequency = **1.000 kHz**
 - (d) LEVEL = **5.000 kHz**
3. Press **SINAD** button until the display shows the SINAD value and press **dB** button.
4. Press **RF GEN** and **LEVEL** buttons. Using the **VARIABLE** knob. Decrease RF GEN LEVEL until **SINAD** value is **12 dB**.
5. Check the **RF GEN LEVEL** equals **less than -2 dB μ V** (+4 dB μ Vemf). When value is over, change RF unit.

Squelch Check:

1. Keep same RX TEST settings as in **Receiving Sensitivity Check**.
2. Connect scope (X1) positive lead to TP-SQL, negative lead to TP-AGND and BNC end to scope. Set scope to following condition.
 - (a) TIME/DIV = **1 msec**.
 - (b) VOLT/DIV = **1 V**
3. Set **RF GEN LEVEL** to **+2 dB μ V** (+8 dB μ Vemf). Check scope voltage is **LOW**.
4. Set **RF GEN LEVEL** to **-13 dB μ V** (-7 dB μ Vemf). Check the scope voltage is **HIGH**.
5. When the scope does not above condition, adjust **VRsq** until scope voltage toggles between **LOW & HIGH**.
6. When RF GEN LEVEL is **-5.5 dB μ Vemf** (+0.5 dB μ Vemf). If can't adjust replace RF PCB.

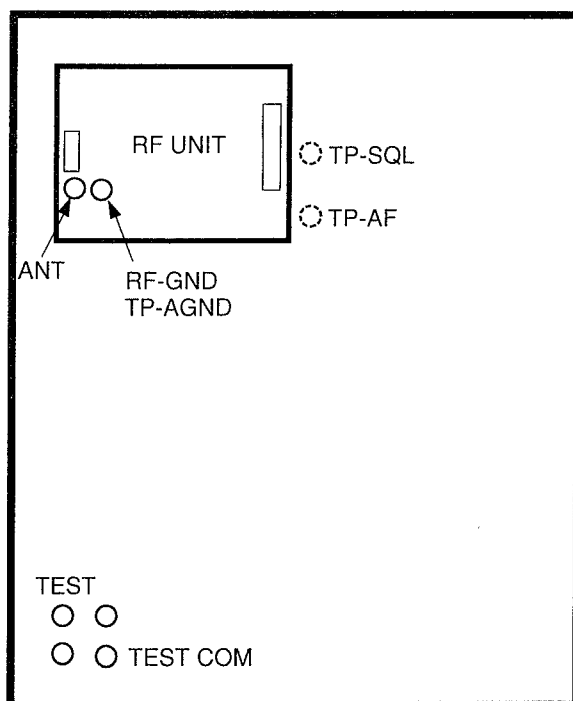


Fig.15

CPU DATA (Base Unit)

IC301 MN150832KB1

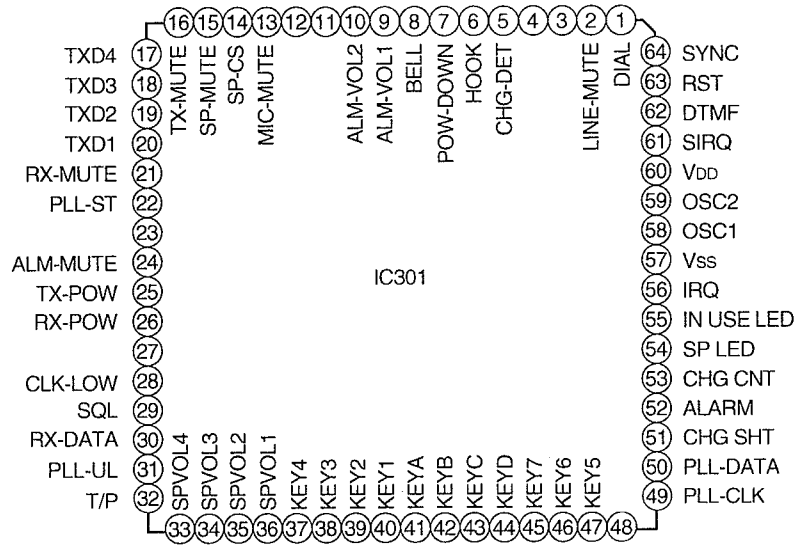


Fig.16

Pin	Description	I/O	High	Low	High-Z	Pin	Description	I/O	High	Low	High-Z
1	DP RLY	I/O	OFF	ON	-	33	SP-VOL1	I/O	Low: Min	~ Hi-Z: Max	
2	LINE MUTE	I/O	ON	OFF	-	34	SP-VOL2	I/O	Low	Hi-Z	
3	Not Used	I/O	-	Fixed	-	35	SP-VOL3	I/O	Hi-Z	Hi-Z	
4	Not Used	I/O	-	Fixed	-	36	SP-VOL4	I/O	Low	Hi-Z	
5	M.CHG DET	I/O		Charge	-	37	KEY-STROBE	I/O	-	Active	Normal
6	EX HOOK	I/O	OFF HOOK		-	38	KEY-STROBE	I/O	-	Active	Normal
7	POW DOWN	I/O		Down	-	39	KEY-STROBE	I/O	-	Active	Normal
8	BELL	I/O		Bell in	-	40	KEY-STROBE	I/O	-	Active	Normal
9	ALM VOL.1	I/O	Hi_Z...High	Hi_Z...Mid	Low...Low	41	KEY IN	I	OFF	ON	-
10	ALM VOL.2	I/O	Hi_Z	Low	Low	42	KEY IN	I	OFF	ON	-
11	Not Used	I/O		Fixed	-	43	KEY IN	I	OFF	ON	-
12	Not Used	I/O		Fixed	-	44	KEY IN	I	OFF	ON	-
13	MIC MUTE	I/O	ON	OFF	-	45	KEY-STROBE	I/O	-	Active	Normal
14	SP-CS	I/O	ON	OFF	-	46	SW-STROBE	I/O	-	Active	Normal
15	SP-MUTE	I/O	ON	OFF	-	47	SW-STROBE	I/O	-	Active	Normal
16	TX MUTE	I/O	ON	OFF	-	48	RU-OPTION	I/O	BX	RU	-
17	(TX DATA4)	I/O			-	49	PLL CLK	I/O(I)	Active	Active	Normal
18	(TX DATA3)	I/O			-	50	PLL DATA	O(I)	Active	Active	Normal
19	(TX DATA2)	I/O			-	51	CHG. SHORT	I	Short	Normal	-
20	TX DATA (ID)	I/O			-	52	ALARM	O(I)	Active	Active	Normal
21	RX MUTE	I/O	ON	OFF	-	53	M.CHG.CONTROL	I/O	-	Tricle	Ultra
22	PLL ST	I/O	Latch		-	54	SP LED	I/O	-	ON	OFF
23	Not Used	I/O		Fixed	-	55	IN USE LED	I/O	-	ON	OFF
24	ALM MUTE	I/O	ON	OFF	-	56	External Interrupt	I	Fixed	-	-
25	TX POW	I/O	-	ON	OFF	57	GND		-	Normal	-
26	RX POW	I/O	-	ON	OFF	58	Oscillator	I	Active	Active	-
27	Not Used	I/O	-	Fixed	-	59	Oscillator	O	Active	Active	-
28	CLK-LOW	I/O	-	ON	OFF	60	Power Supply		Normal	-	-
29	FLS(20)	I/O	Low	High	-	61	External Interrupt	I	Fixed	-	-
30	RX DATA	I/O			-	62	DTMF	O	Active	Active	Normal
31	PLL UNLOCK	I/O		Unlock	-	63	RESET	I	Normal	Reset	-
32	T/P SW	I/O	Tone	Pulse	-	64	System Sync. Idle	O	Active	Active	-

CPU DATA (Portable Handset)

IC201 MN150837KD2

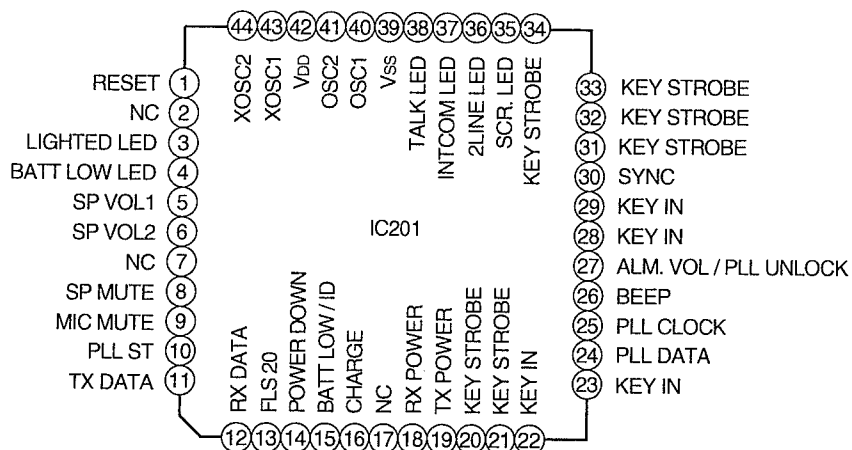


Fig.17

Pin	Description	I/O	High	Low	High-Z	Pin	Description	I/O	High	Low	High-Z
1	RESET	I/O		RESET		23	KEY IN	I		KEY IN	
2	Not Used	-				24	PLL DATA	I/O			
3	LIGHTED LED	I/O	ON	OFF		25	PLL CLOCK	I/O			
4	BATT.LOW LED	I/O	OFF	ON		26	BEEP	I/O			
5	SP VOL.1	I/O				27	ALM. VL/PLK UK	I/O	High/lock	Low/UNLOCK	
6	SP VOL.2	I/O				28	KEY IN	I		KEY IN	
7	Not Used	-				29	KEY IN	I		KEY IN	
8	SP MUTE	I/O	MUTE			30	Not Used	O			
9	MIC MUTE	I/O	MUTE			31	KEY STROBE	O			
10	PLL ST	I/O				32	KEY STROBE	O			
11	TX DATA	I/O				33	KEY STROBE	O			
12	RX DATA	I				34	KEY STROBE	O			
13	FLS20	I/O		Electric Field		35	SCR.LED	O		ON	OFF
14	POW DOWN	I/O		POWDOWN		36	2LINE LED	O		ON	OFF
15	ID/BAT.LOW	I/O		BAT.LOW		37	INT.LED	I/O		ON	OFF
16	CHARGE	I/O		CHARGE		38	TLK.LED	I/O		ON	OFF
17	Not Used	-				39	GND	-			
18	RX POW	I/O		ON	OFF	40	MAIN CLOCK	O			
19	TX POW	I/O		ON	OFF	41	MAIN CLOCK	I			
20	KEY STROBE	I/O				42	POWER SUPPLY	-			
21	KEY STROBE	I/O				43	SUB CLOCK	I			
22	KEY IN	I		KEY IN		44	SUB CLOCK	O			

EXPLANATION OF CPU DATA COMMUNICATION

1. Calling

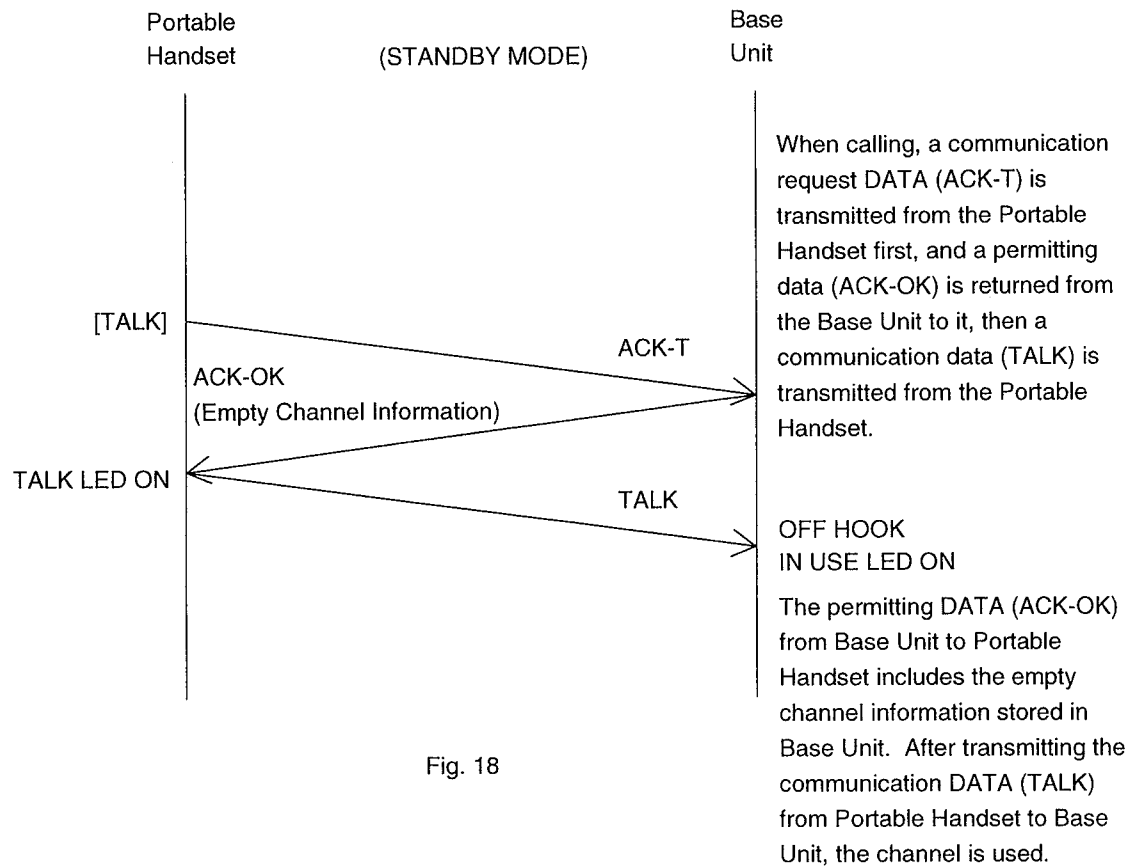


Fig. 18

2. To terminate Communication

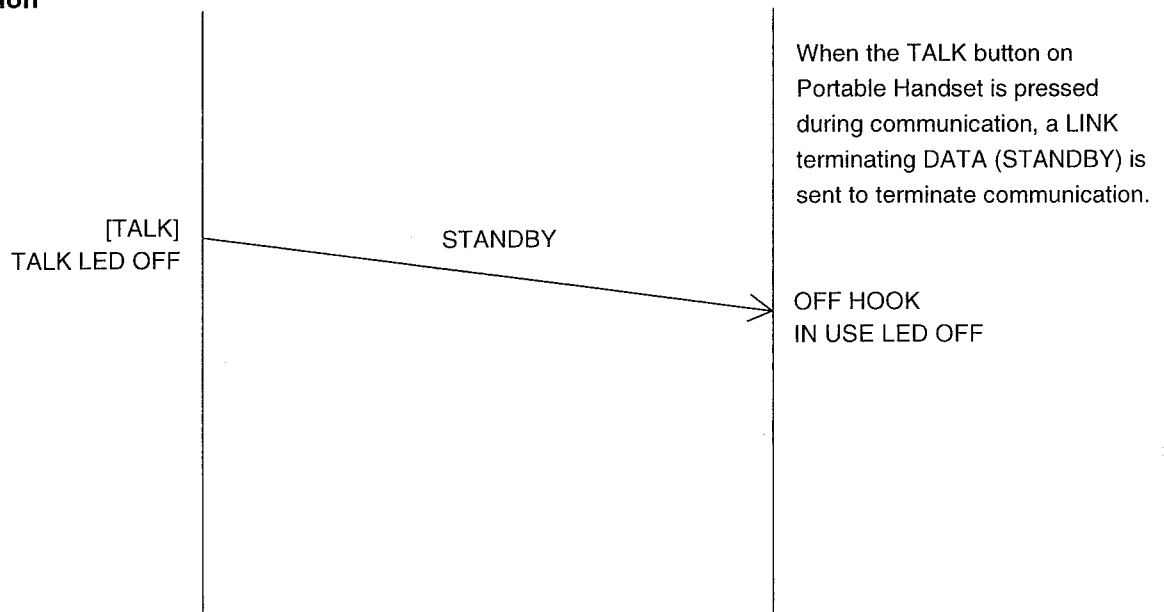


Fig. 19

3. Ringing

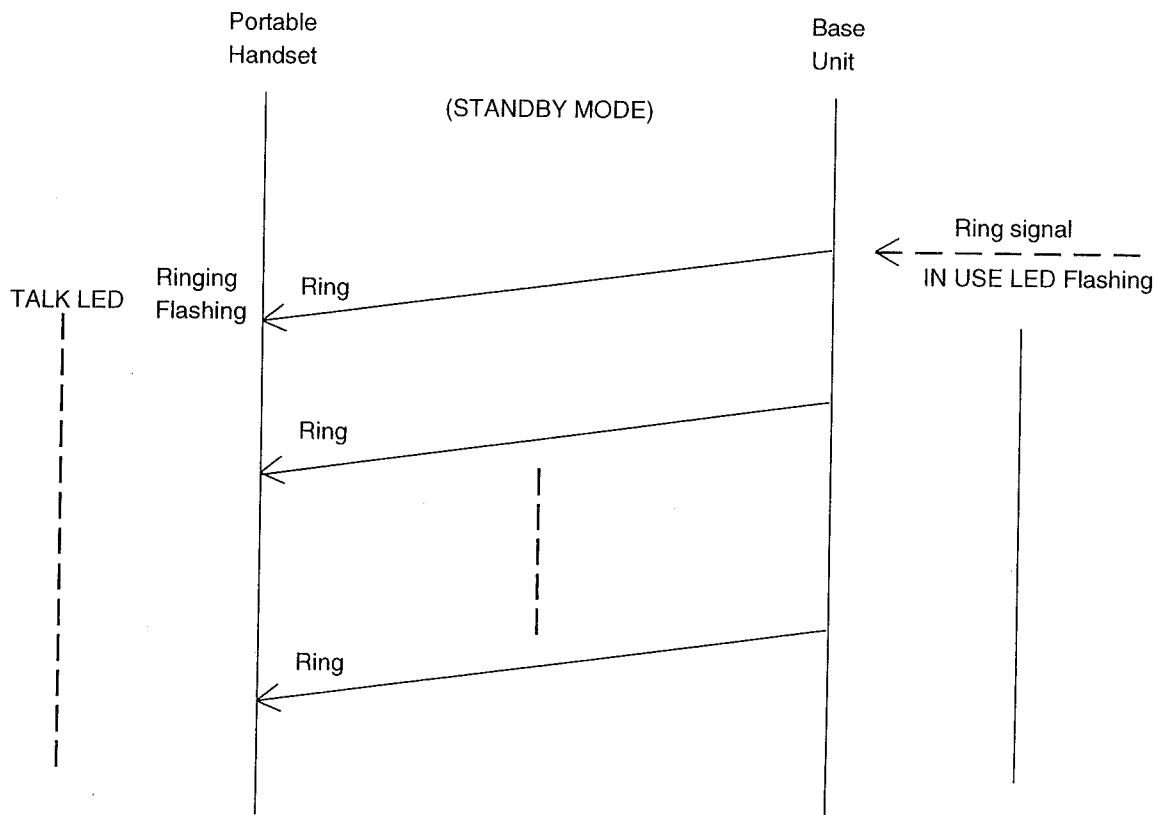


Fig. 20

After detecting the Ring signal from circuit, Base Unit sends a ring signal DATA (Ring), then the Portable Handset starts ringing.

4. Ports for transmitting and receiving of data

Portable Handset : transmitting ... 11 Pin receiving ... 12 Pin

Base Unit : transmitting ... 20 Pin receiving ... 30 Pin

5. Waveform of DATA used for cordless transmission and reception

The DATA which is transmitted from the Portable Handset to the Base Unit is combination of DATA 0, DATA 1, DATA Delimt, Pre data and End data.

The DATA which is transmitted from the Base Unit to the Portable Handset is combination of DATA 0, DATA 1, DATA Delimt, Pre data and End data.

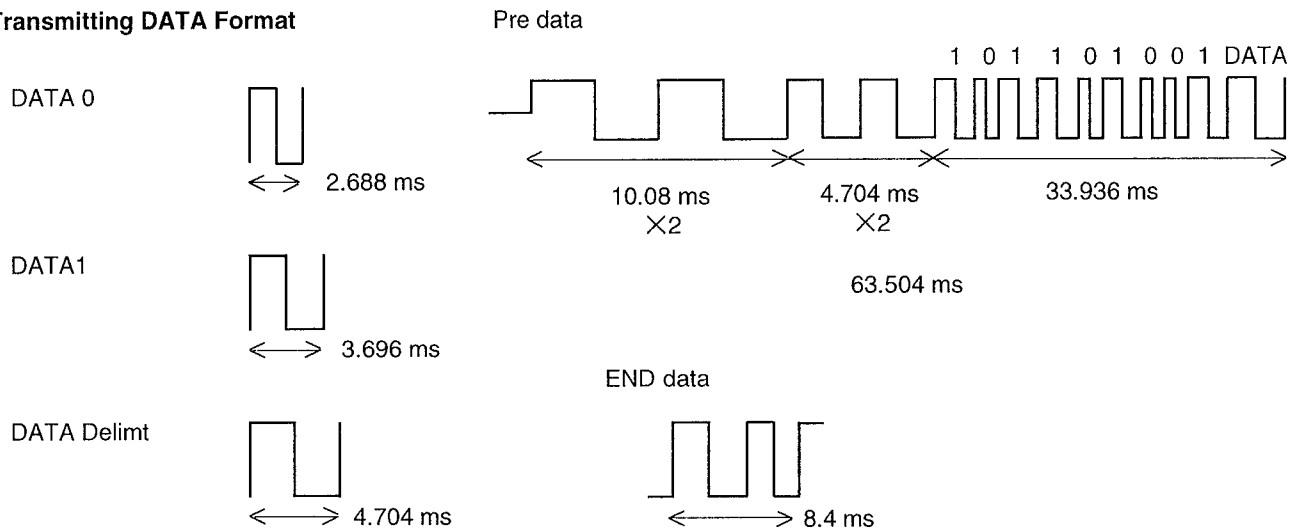
PORTABLE HANDSET**Transmitting DATA Format**

Fig. 21

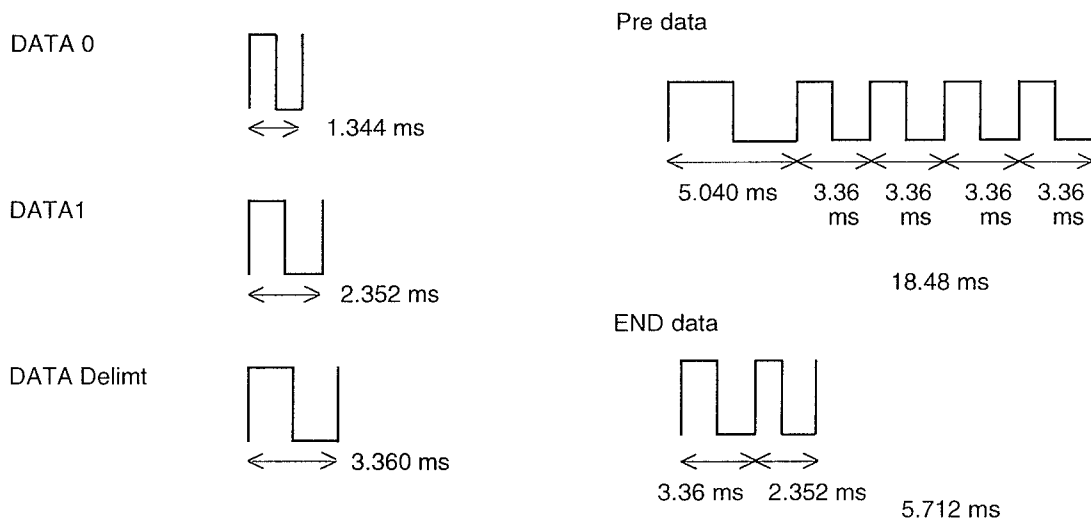
BASE UNIT**Transmitting DATA Format**

Fig. 22

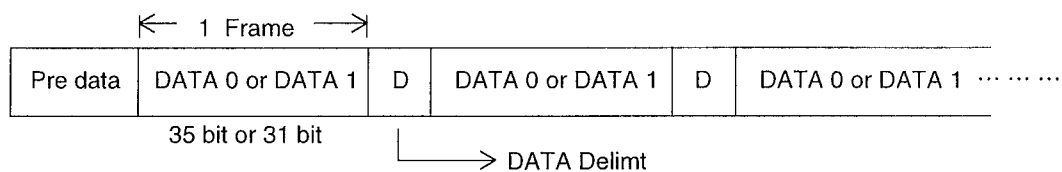
6. When LINKing

Fig. 23

When LINKing from the Portable Handset (when becoming STBY to TALK), DATA is transmitted in above format. The combined portion of DATA 0 and DATA 1 is transmitted in LINK requesting DATA (35bit) format first. Then, when LINK OK (ACK-OK) DATA (19bit) is returned from the Base Unit, it is sent as LINK from DATA after changing the combination of DATA 0 and DATA 1. And the DATA Delimt is between each Frame as a stop.

The contents of LINK requesting DATA and LINK form DATA are different depending on each operation.

KX-TC911-B/KX-TC911-W

7. Pulse Dial

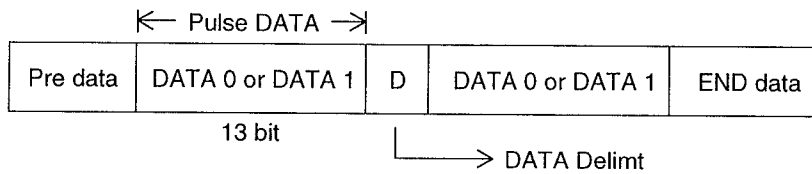


Fig. 24

When executing Pulse Dial, the Pulse Dial DATA is transmitted from the Portable Handset to the Base Unit in above format. The combination of DATA 0 and DATA 1 are changed by each Dial No. And the DATA Delimt is between each Frame as a stop. The number of Frame is 2.

8. Tone Dial

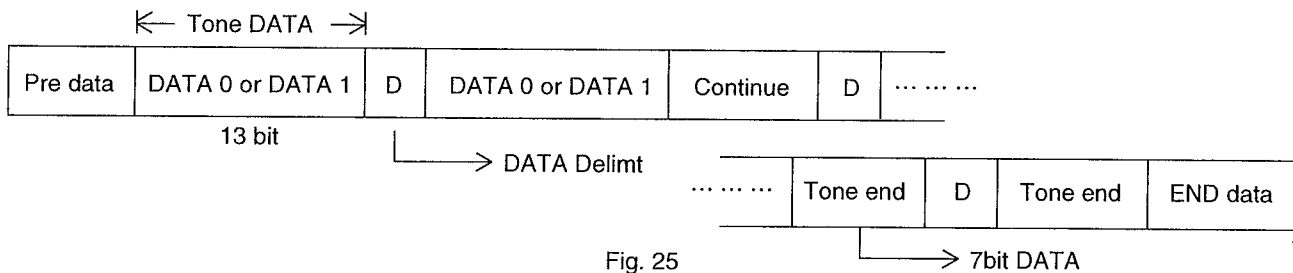


Fig. 25

When executing Tone Dial, Tone Dial DATA is transmitted from the Portable Handset to the Base Unit in above format. The DATA is changed by Dial No. as same as Pulse Dial. When Tone Dialing, DATA (Continue DATA) that the key is pressed continuously is sent to the Base Unit during the key is pressed. When depressing the key, the TONE Dial exterminating DATA (Tone end DATA) is send, and the END data is sent finally.

NOTE

1,000,000 kinds of the security code are available for the model KX-TC911-B/KX-TC911-W. Each time the portable handset is set on the cradle of the base unit (for charging), the CPU automatically change the security code.

FREQUENCY TABLE (MHz)

CH	Base Unit TX Portable Handset RX	Base Unit RX Portable Handset TX	CH	Base Unit TX Portable Handset RX	Base Unit RX Portable Handset TX
1	902.100 MHz	926.100 MHz	16	902.850 MHz	926.850 MHz
2	902.150 MHz	926.150 MHz	17	902.900 MHz	926.900 MHz
3	902.200 MHz	926.200 MHz	18	902.950 MHz	926.950 MHz
4	902.250 MHz	926.250 MHz	19	903.000 MHz	927.000 MHz
5	902.300 MHz	926.300 MHz	20	903.050 MHz	927.050 MHz
6	902.350 MHz	926.350 MHz	21	903.100 MHz	927.100 MHz
7	902.400 MHz	926.400 MHz	22	903.150 MHz	927.150 MHz
8	902.450 MHz	926.450 MHz	23	903.200 MHz	927.200 MHz
9	902.500 MHz	926.500 MHz	24	903.250 MHz	927.250 MHz
10	902.550 MHz	926.550 MHz	25	903.300 MHz	927.300 MHz
11	902.600 MHz	926.600 MHz	26	903.350 MHz	927.350 MHz
12	902.650 MHz	926.650 MHz	27	903.400 MHz	927.400 MHz
13	902.700 MHz	926.700 MHz	28	903.450 MHz	927.450 MHz
14	902.750 MHz	926.750 MHz	29	903.500 MHz	927.500 MHz
15	902.800 MHz	926.800 MHz	30	903.550 MHz	927.550 MHz

HOW TO REPLACE FLAT PACKAGE IC

■ PREPARATION

- SOLDER - - - - - Sparkle Solder 115A-1, 115B-1
OR
Almit Solder KR-19, KR-19RMA
- Soldering iron - - - - - Recommended power consumption will be between 30 W to 40 W.
Temperature of Copper Rod 662 \pm 50 °F (350 \pm 10°C)

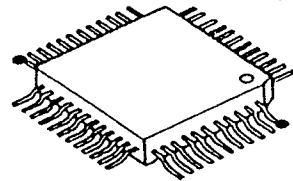
(An expert may handle 60~80 W iron, but beginner might damage foil by overheating.)

- Flux - - - - - HI115 Specific gravity 0.863

(Original flux will be replaced daily.)

■ PROCEDURE

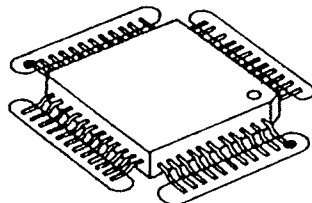
1. Temporary fix FLAT PACKAGE IC by soldering on two marked 2 pins.



● - - - - - Temporary soldering point.

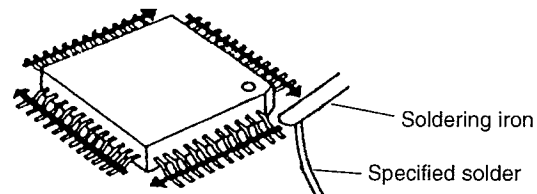
*Most important matter is accurate setting of IC to the corresponding soldering foil.

2. Apply flux for all pins of FLAT PACKAGE IC.



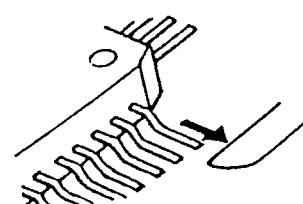
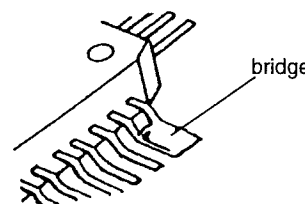
○ - - - - - Flux

3. Solder employing specified solder to direction of arrow, as sliding the soldering iron.

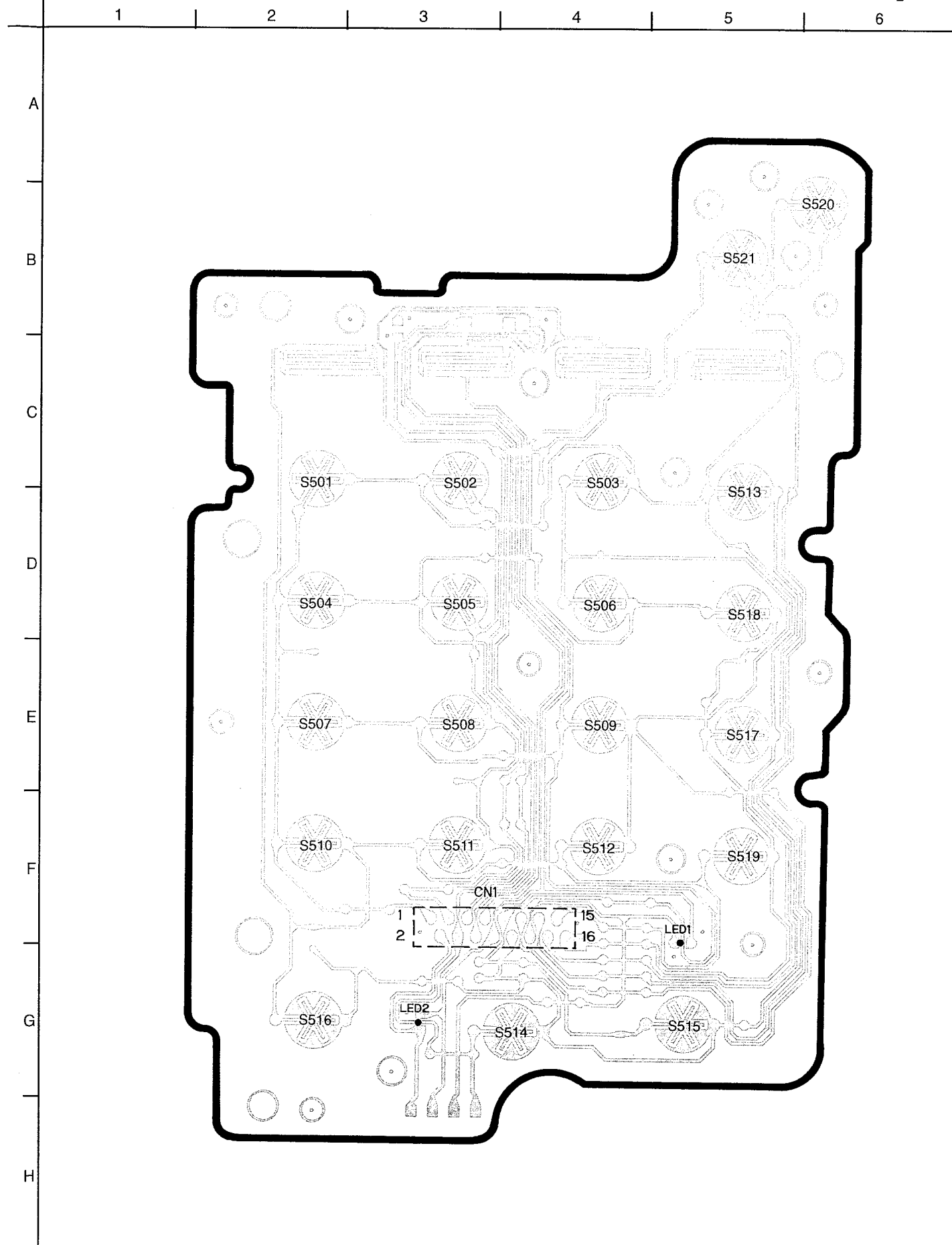


■ MODIFICATION PROCEDURE OF BRIDGE

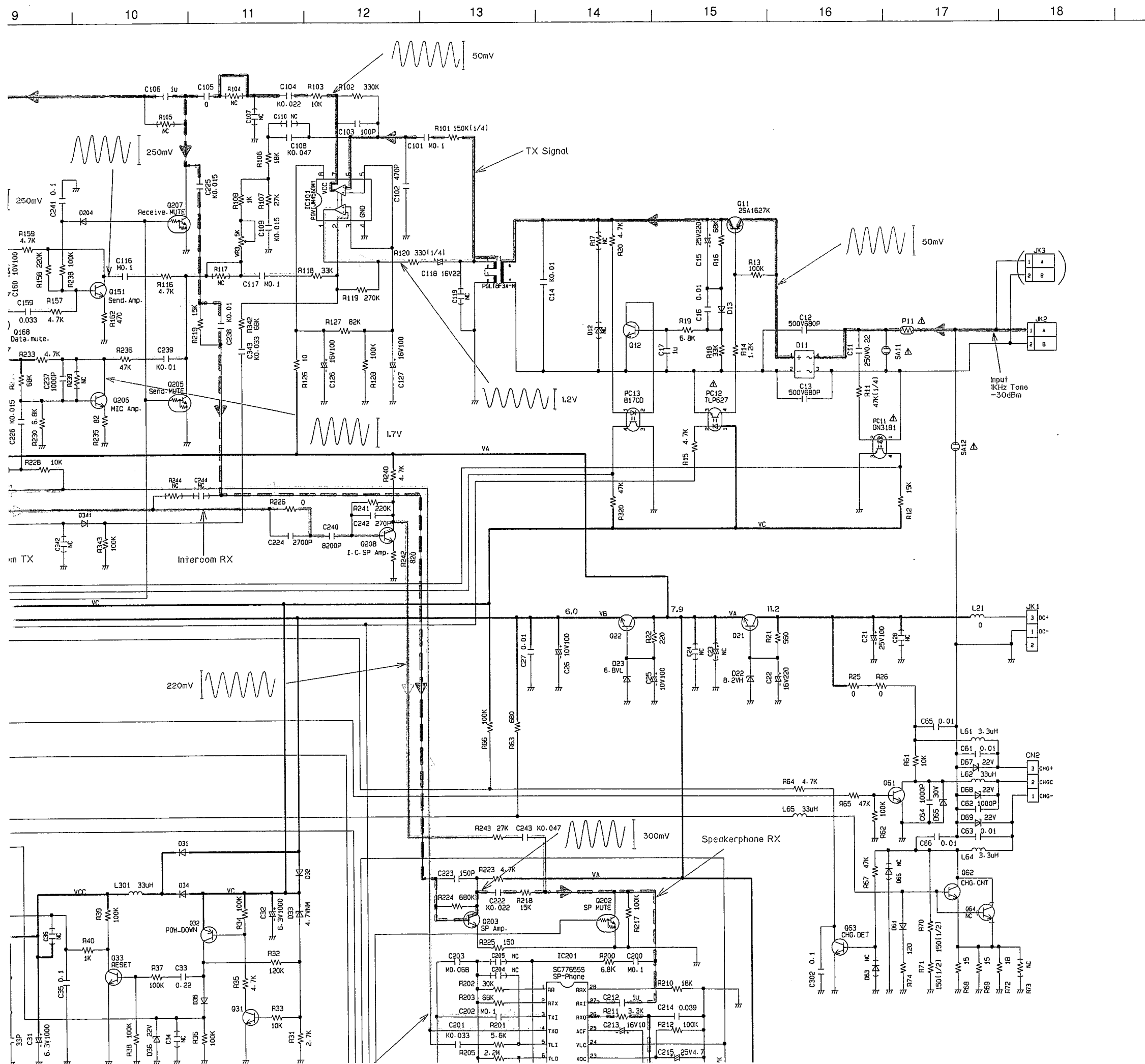
1. Re-solder slightly on bridged portion.
2. Remove remained solder along pins employing soldering iron as shown in below figure.

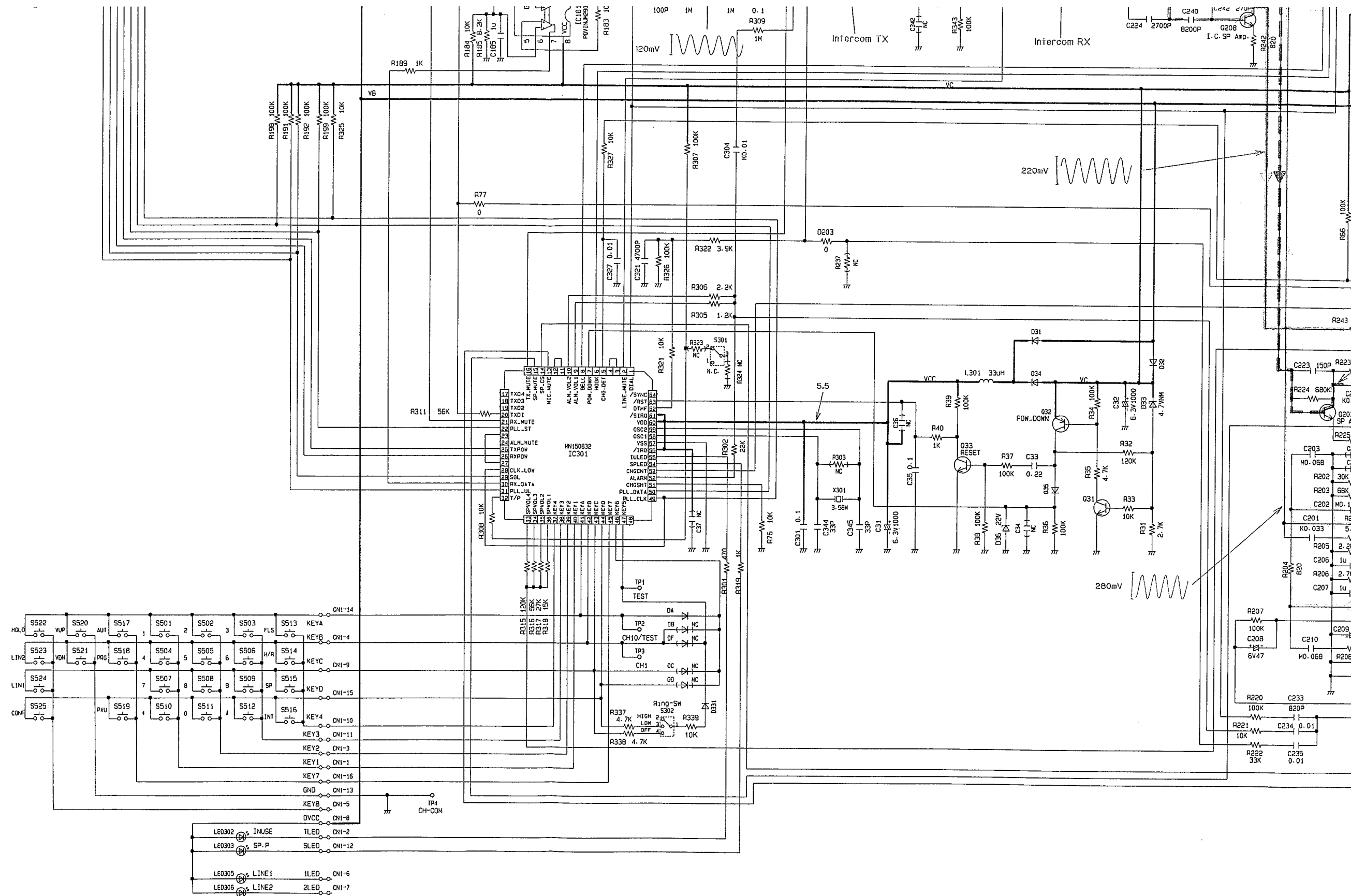


CIRCUIT BOARD (Base Unit) [OPERATIONAL P.C.BOARD]



KX-TC911-B/KX-TC911-W





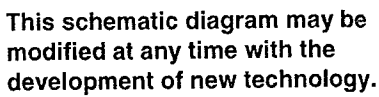
Notes:

1. S302: Ringer Selector Switch
2. S501~509, 511, 512: Dialing Switch
3. S510: Tone Switch
4. S513: Flash Switch
5. S514: Hold Switch
6. S515: Speakerphone Switch
7. S516: Locator/Intercom Switch
8. S517: Auto Switch
9. S518: Program Switch
10. S519: Redial/Pause Switch
11. S520: Volume (Up) Switch
12. S521: Volume (Down) Switch
13. DC voltage measurements are taken with voltmeter from the negative voltage line.

Important Safety Notice:

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

This schematic diagram may be modified at any time with the development of new technology.



- 25 -

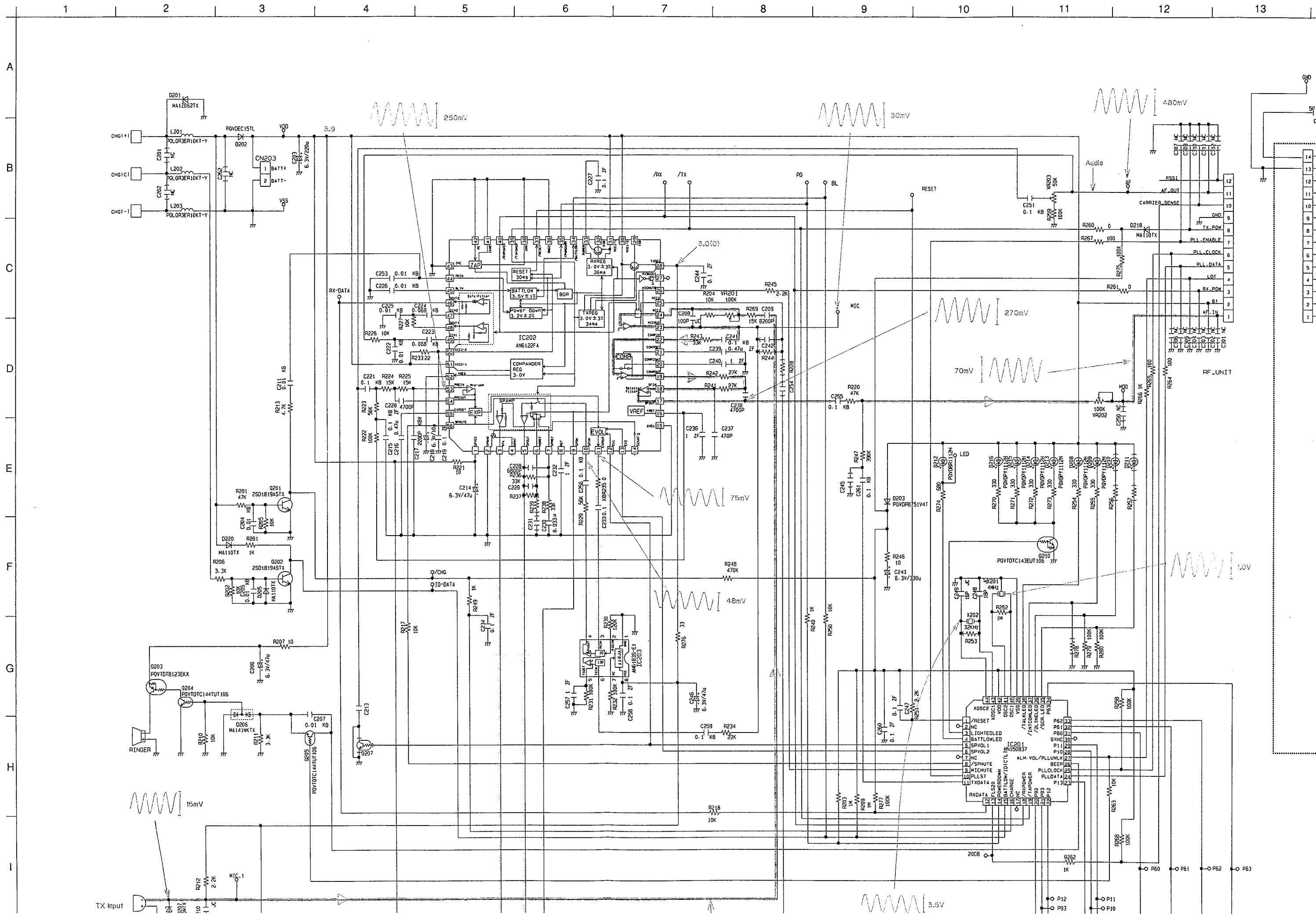
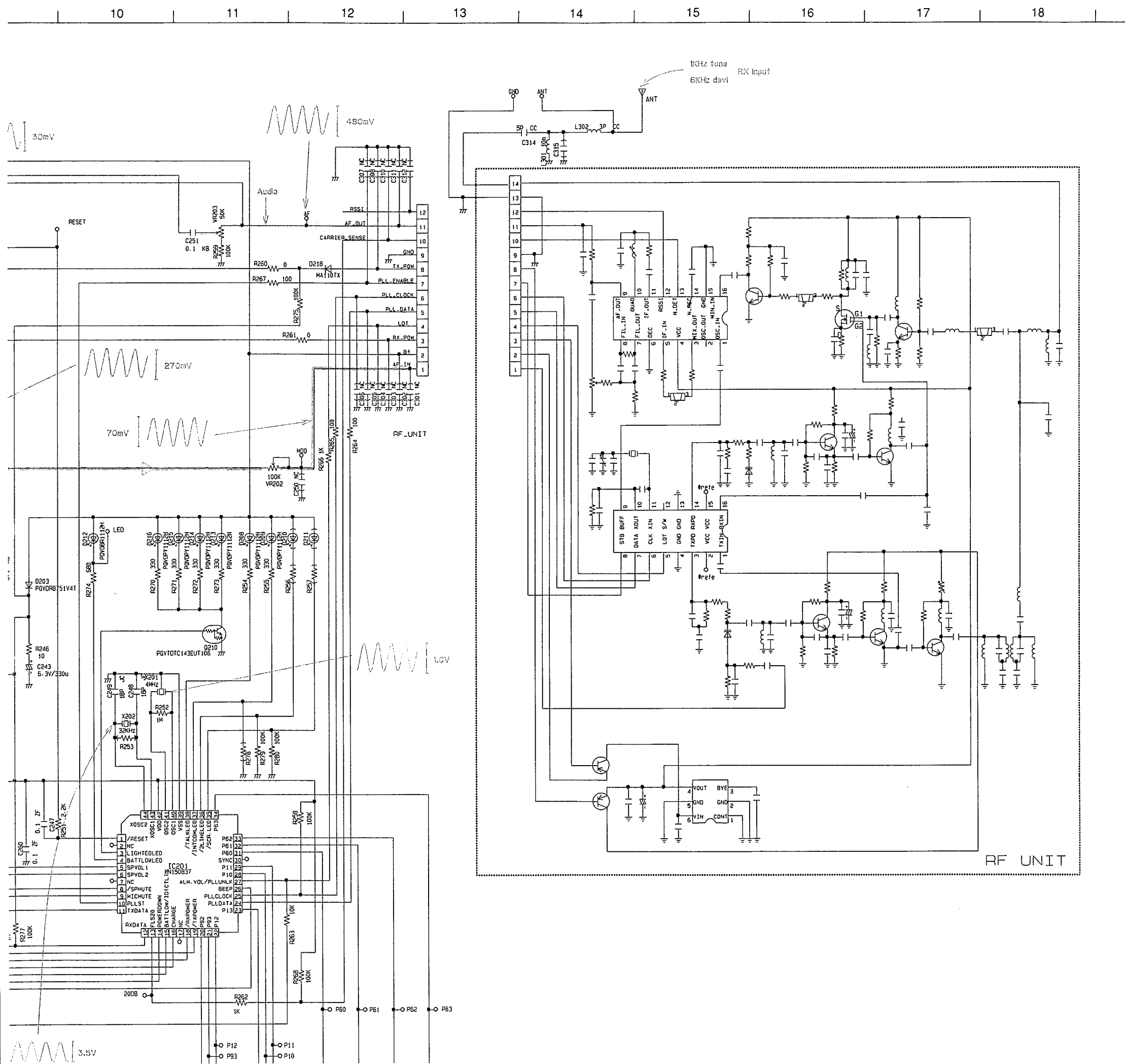
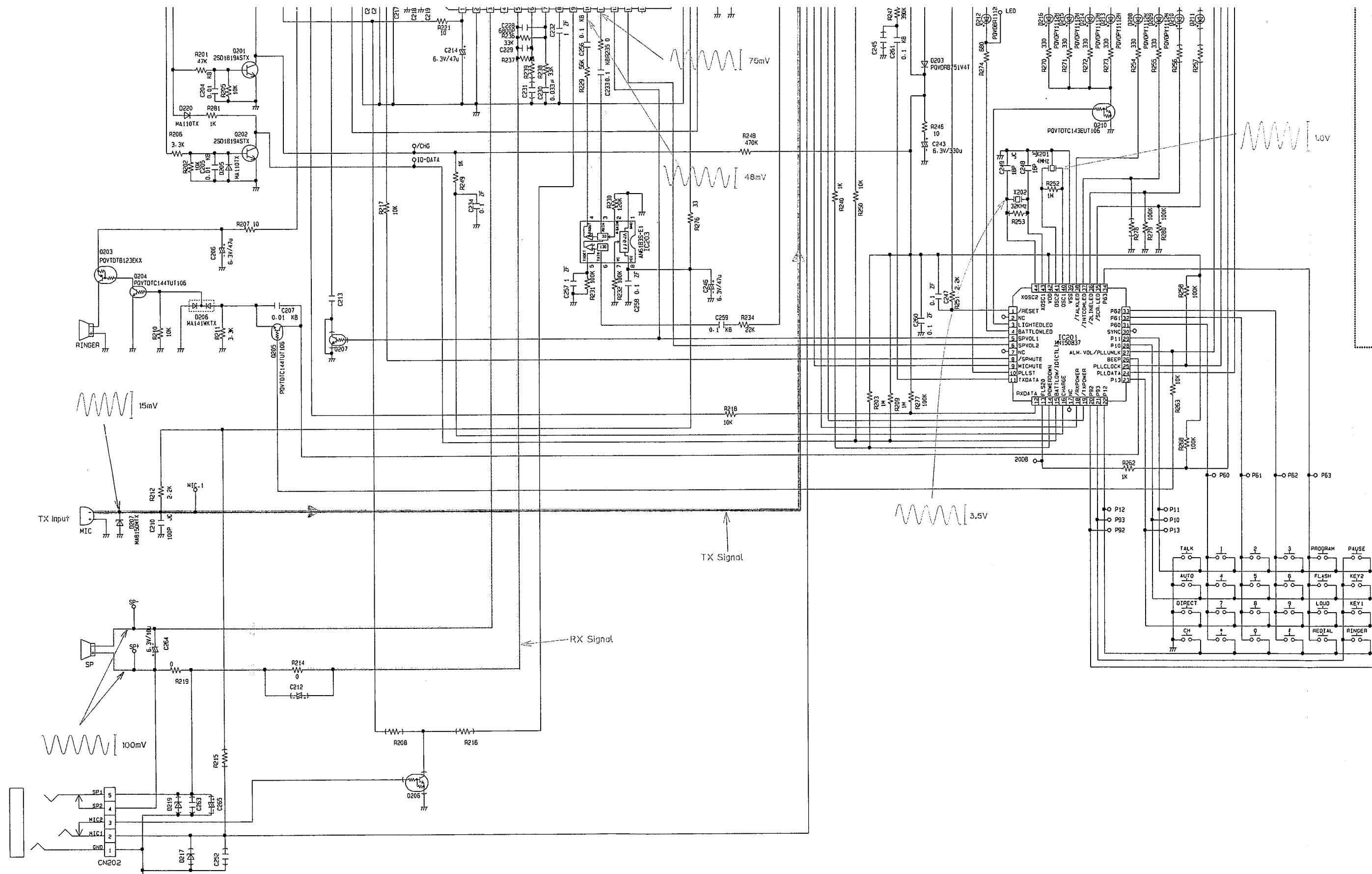


DIAGRAM (Portable Handset)

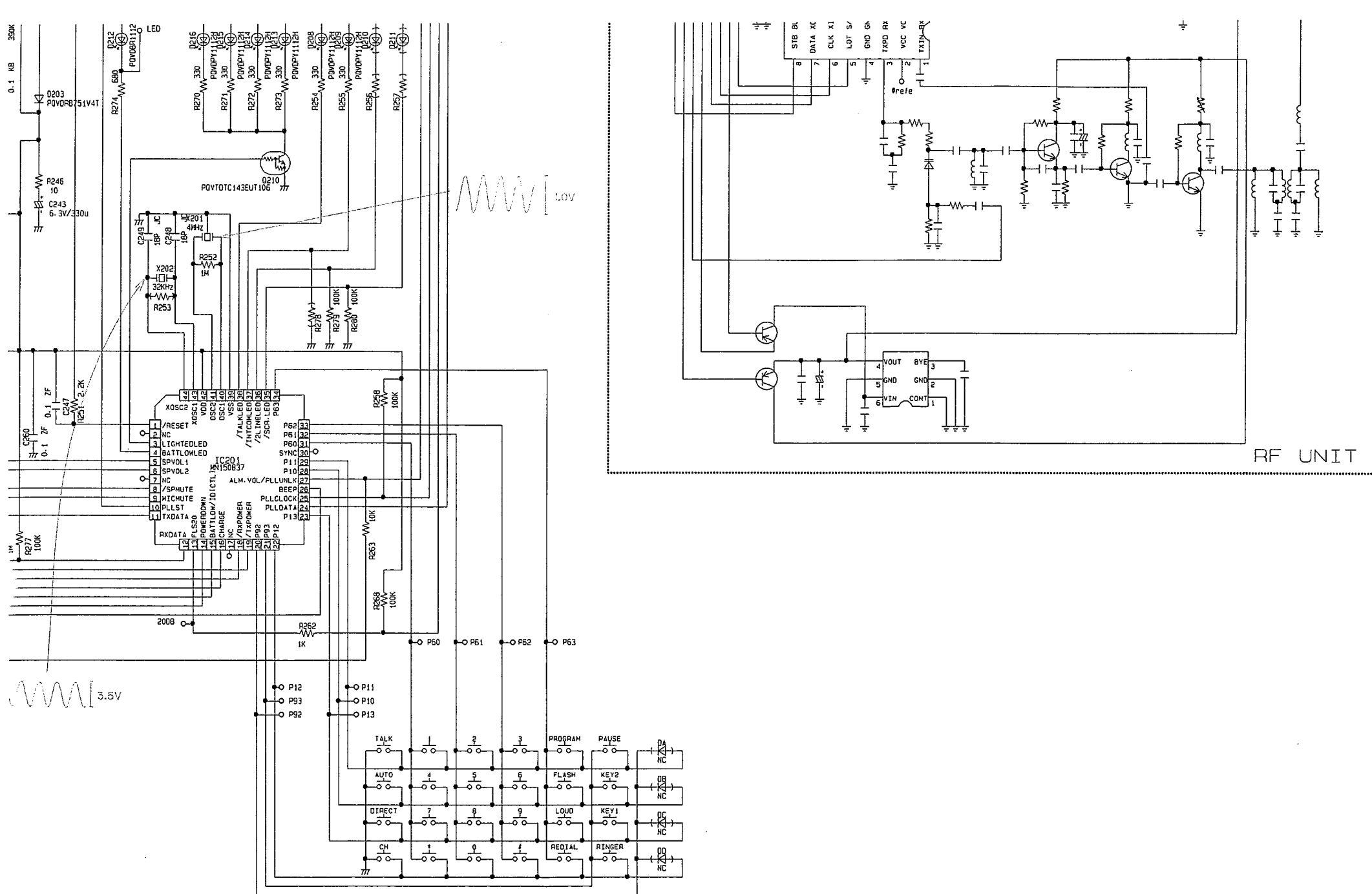




Notes:

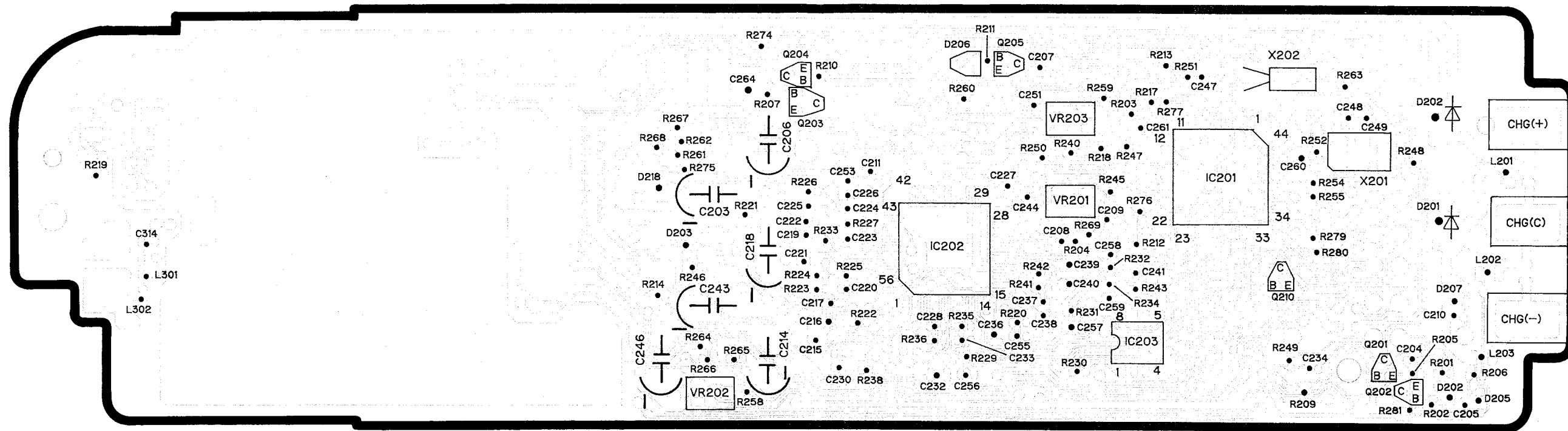
1. DC voltage measurements are taken with voltmeter from the negative voltage line.

This schematic diagram may be modified at any time with the development of new technology.

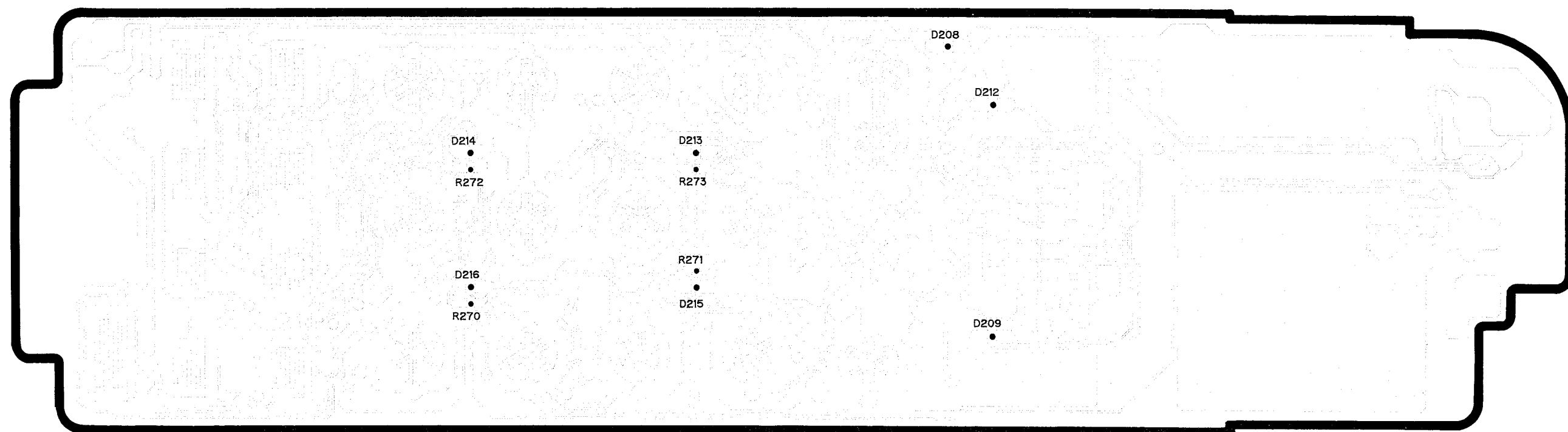


CIRCUIT BOARD (Portable Handset)

(Flow Solder Side View)



(Component View)



BLOCK DIAGRAM (Portable Handset)

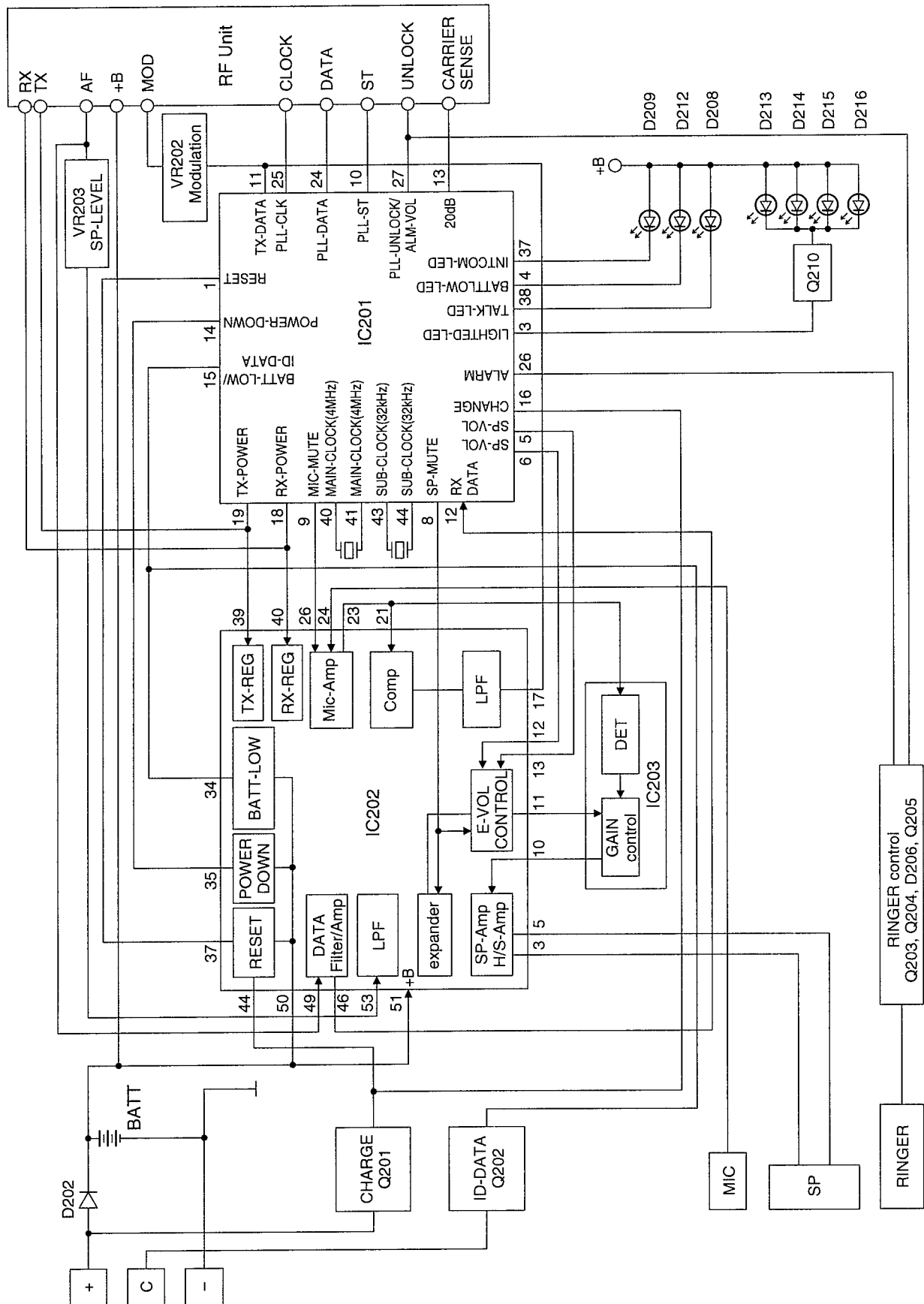


Fig. 34

NEW CIRCUIT OPERATION (Portabl Handset)

1. Power Supply Ciurcuit

As indicated in Fig.35, voltage is supplied separately to each block.

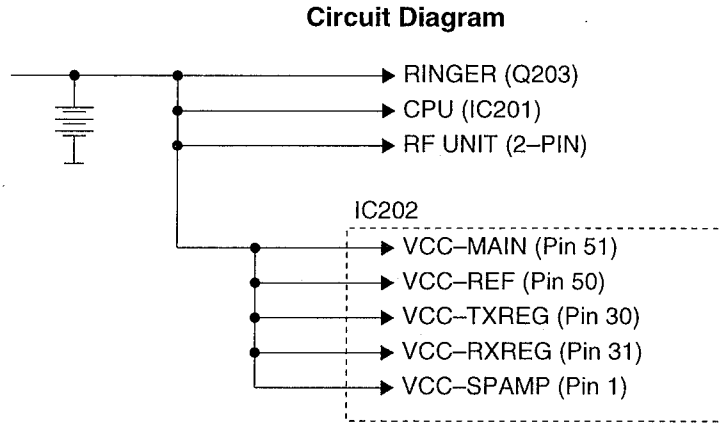


Fig. 35

2. Data Reception Circuit

The wave detection signal from the RF UNIT has high frequency elements eliminated by a CR filter consisting of R226 and C222. Then it is amplified by DATA Amp1 and, once again, high frequency elements are eliminated by R227 and C224. After this, the signal is amplified by DATA Amp2 and input to pin ⑫ of the CPU.

The data output waveform is a block pulse.

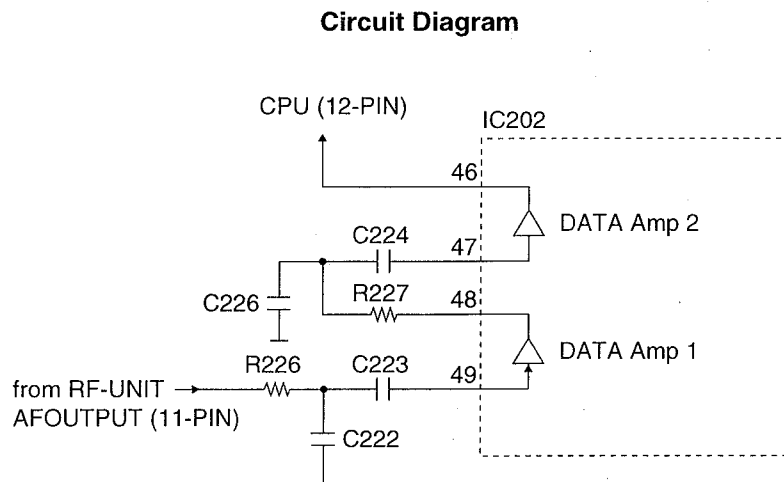


Fig. 36

3. Ringer Circuit

If the ringer volume is set to low and the key is entered occurs, an alarm tone is output from pin ②⑥ of the CPU and input to Q205 and C207. Then Q205 is turned off. The ringer sound is decreased depending on the time constant of C207 and R211. If the ringer volume is set to high, Q205 turns on and results in a louder beep tone.

Circuit Diagram

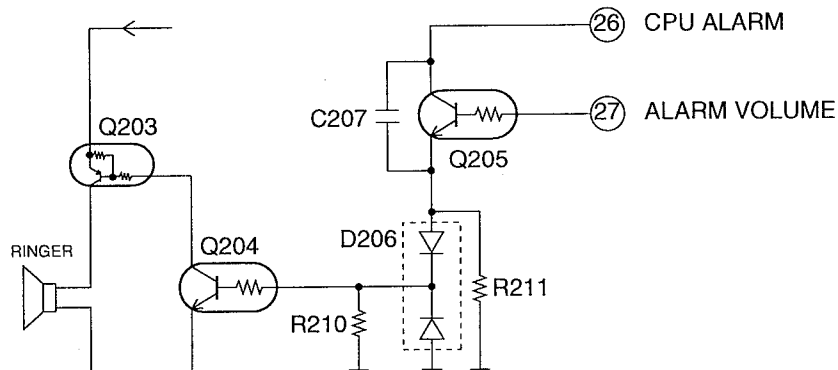


Fig. 37

4. Reception Signal Circuit

The receiver circuit comprises expander IC202, side tone control IC IC203.

After being adjusted to the appropriate level by VR203, the signal passes through a 3 kHz LPF and an expander built into IC202. It is then input to side tone IC IC208. The side tone IC is connected to the microphone amplifier. If a large input is input to the microphone, the gain control built into IC203 lowers the gain to reduce the output of the speaker amplifier. If there is no large input being input to the microphone, the amplifier in IC203 is set to standard gain. Consequently, the sound of the received audio signal becomes fainter when the user is talking in a loud voice and the side tone level is lowered. When the user talks more softly, the received audio signal is audible at the standard level.

RX VOL	EV1 ⑫ pin	EV2 ⑬ pin
+7dB	H	L
0dB	L	H
-7dB	L	L

SP MUTE H : SPEAKER OFF
L : SPEAKER ON

Circuit Diagram

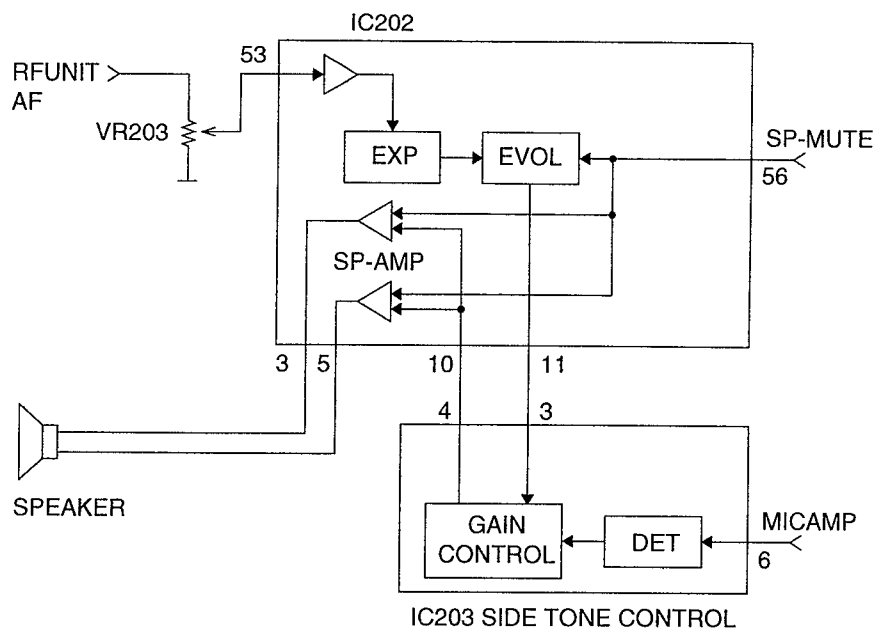


Fig. 38

5. Sending Signal

The audio signal from the microphone is amplified by Mic Amp, compander, and 3 kHz LPF built into IC202. It is then mixed with the TX DATA signal from the CPU, the modulation is adjusted by VR202, and input to the modulator in the RF UNIT.

Circuit Diagram

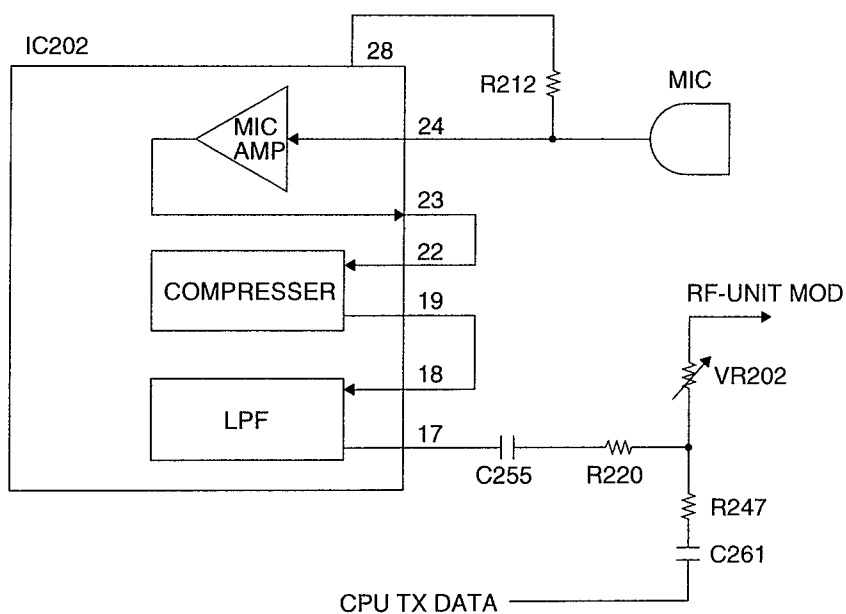


Fig. 39

6. Reset/Power Down/Battery Low/ID

When the battery is installed in the portable handset, the reset circuit consisting of R213, C211, and inside IC202 functions, inputting a reset signal to the CPU. This ensures that the unit will operate normally without the user's needing to switch the power off and on. When the voltage from the batteries drops to 3.5 V, 3.5 V voltage detector inside IC202 operates and inputs a battery low signal to the CPU. This causes the battery low LED to turn on. If voltage continues to drop and reaches 3.2 V, 3.2 V voltage detector inside IC202 operates and outputs a power down signal to the CPU. This causes power to be cut off automatically and prevents the battery from over discharging.

Q201 is a charge detector that informs the CPU whether or not the portable handset is currently being charged. During charging, ID data is sent from the base unit. Q202 receives this ID data and sends it to the CPU.

Circuit Diagram

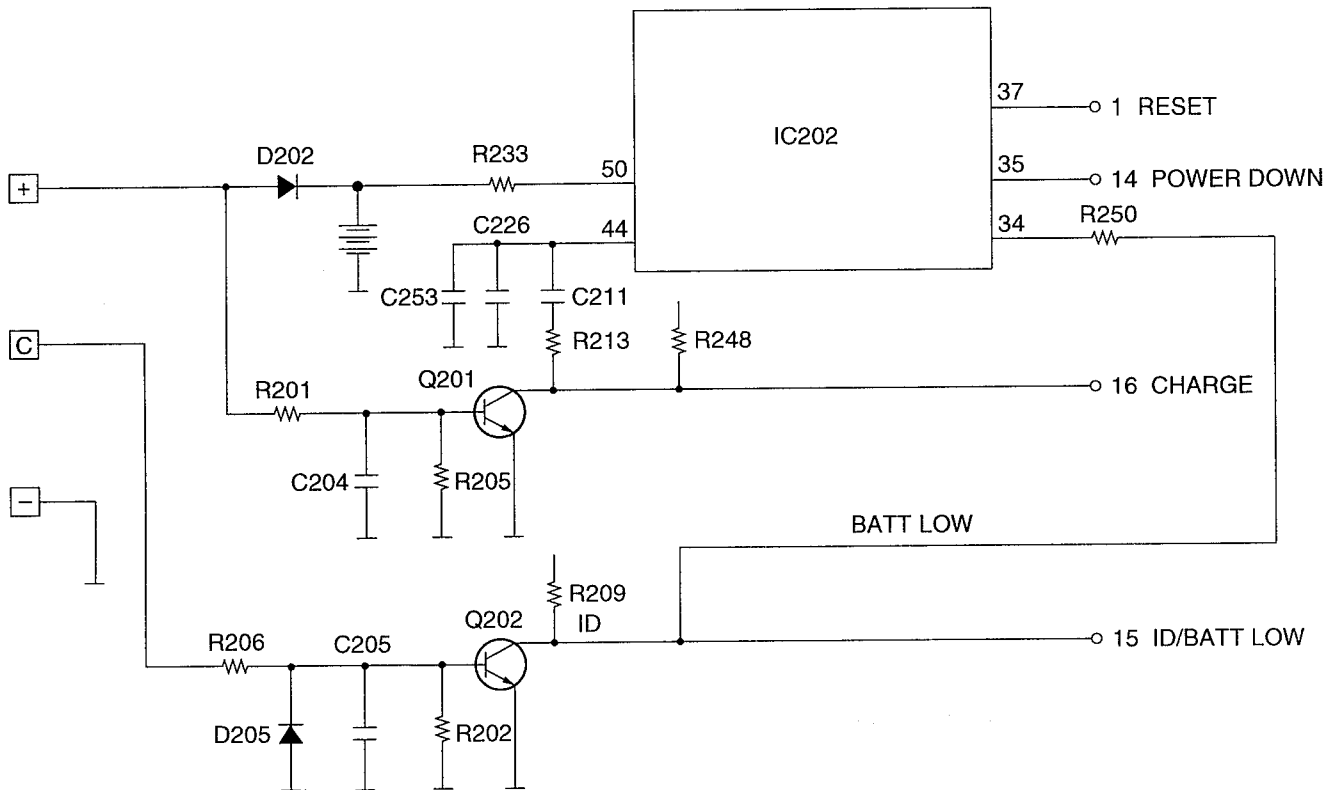
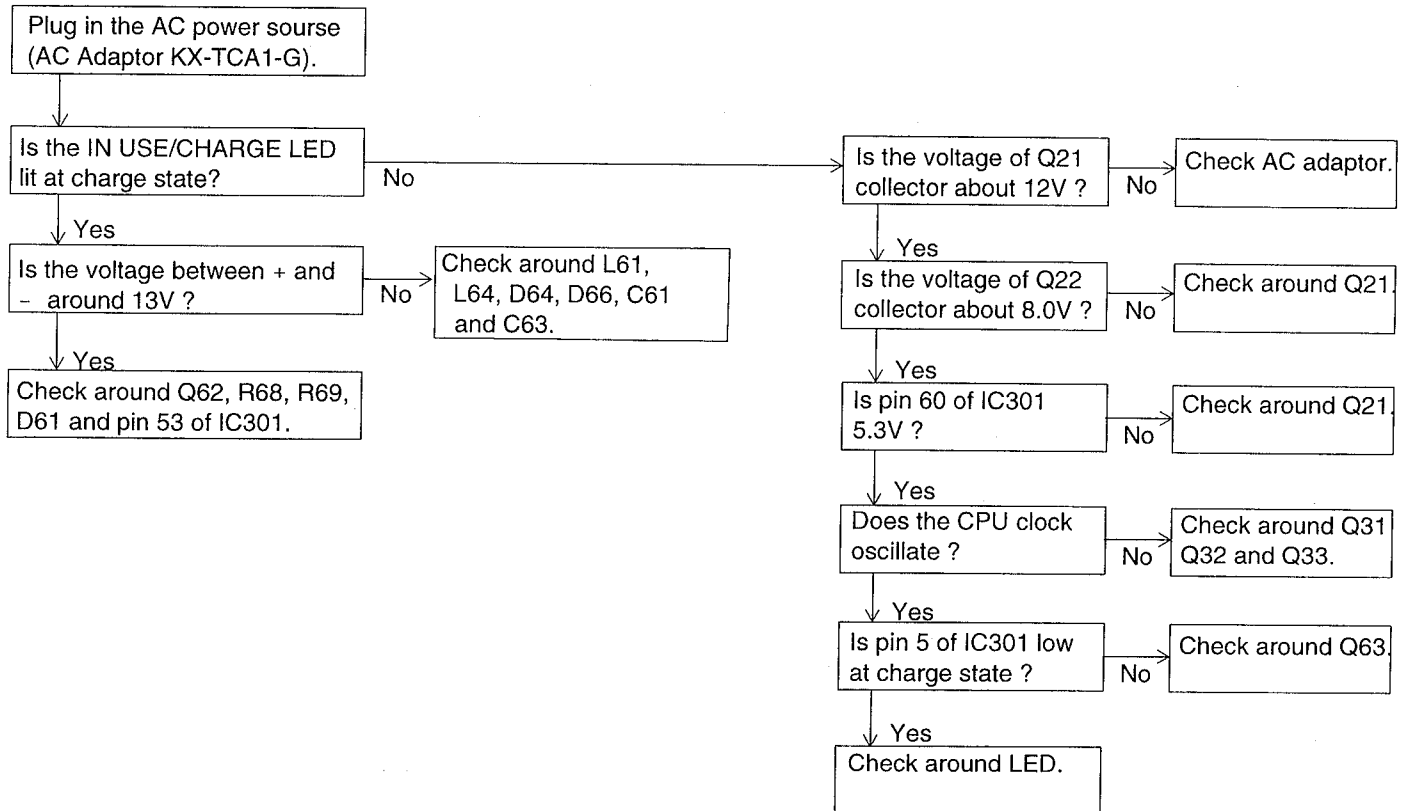


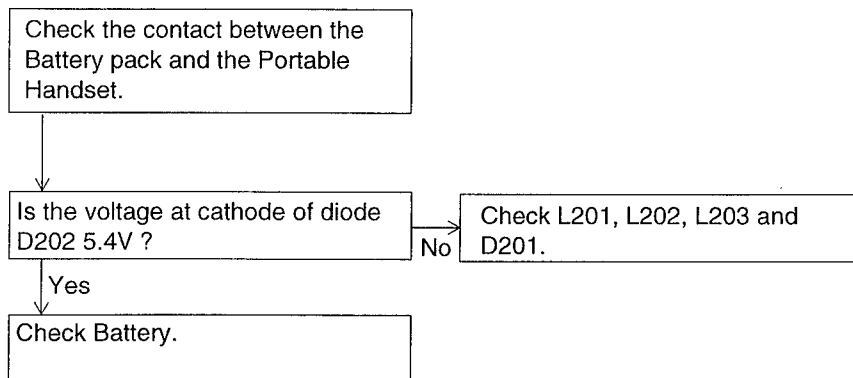
Fig. 40

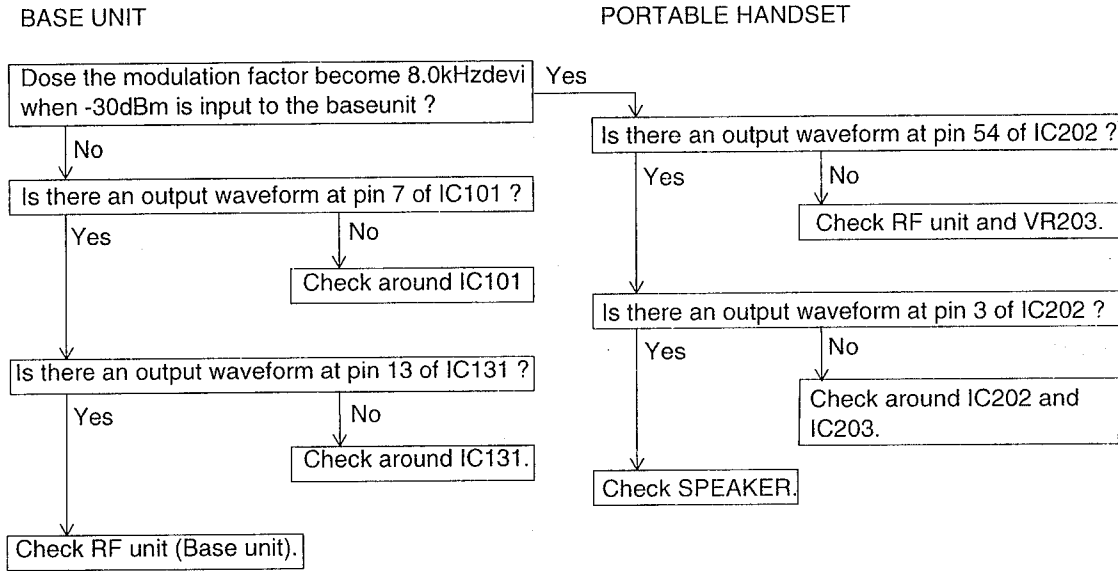
TROUBLESHOOTING GUIDE

(1) Battery won't charge (Base unit)

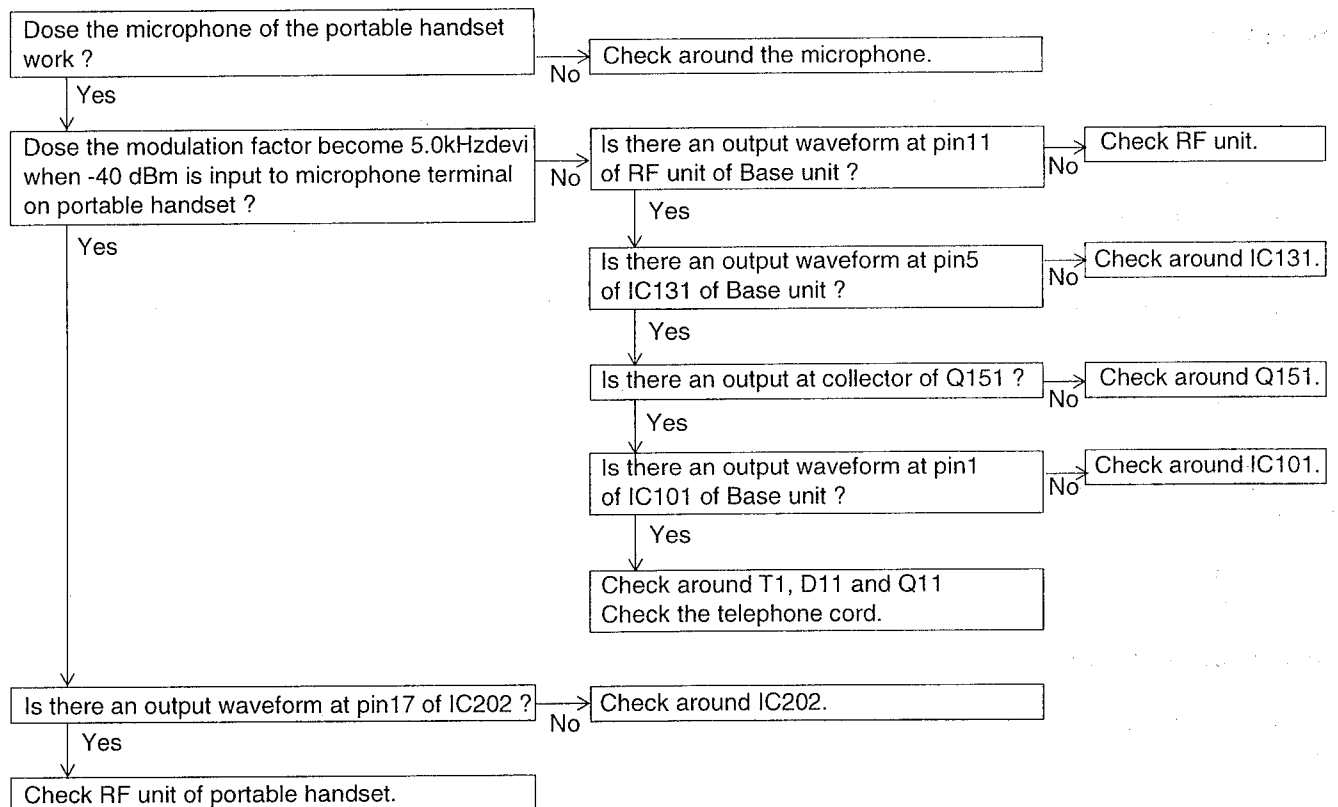


(2) Battery won't charge (Portable Handset)



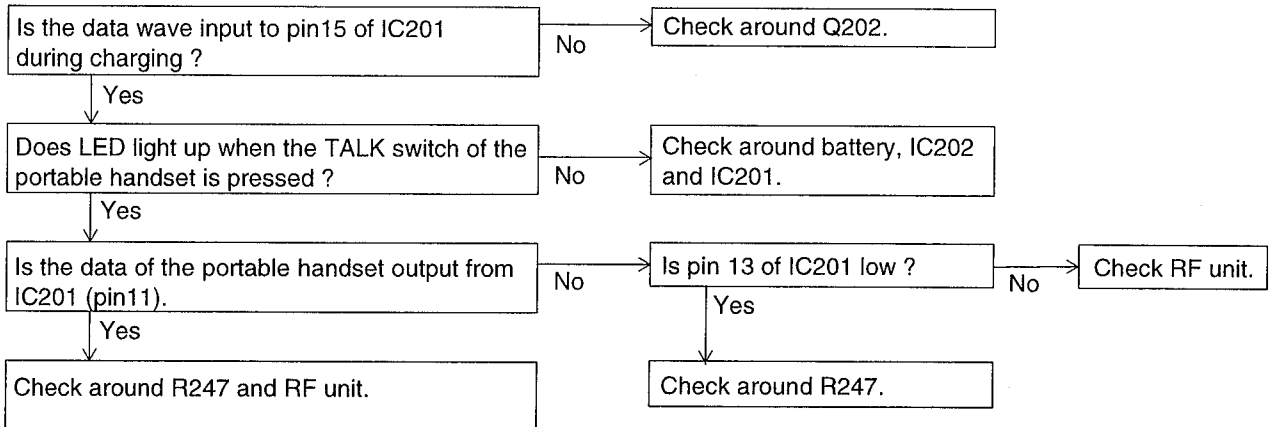
(3) No voice reception

Note: When checking the RF UNIT, refer to pages 15 and 16.

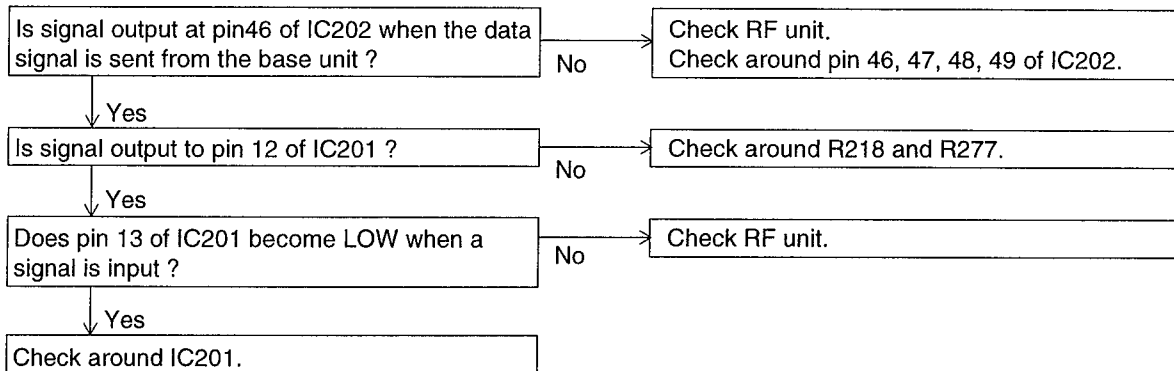
(4) No voice transmission

KX-TC911-B/KX-TC911-W

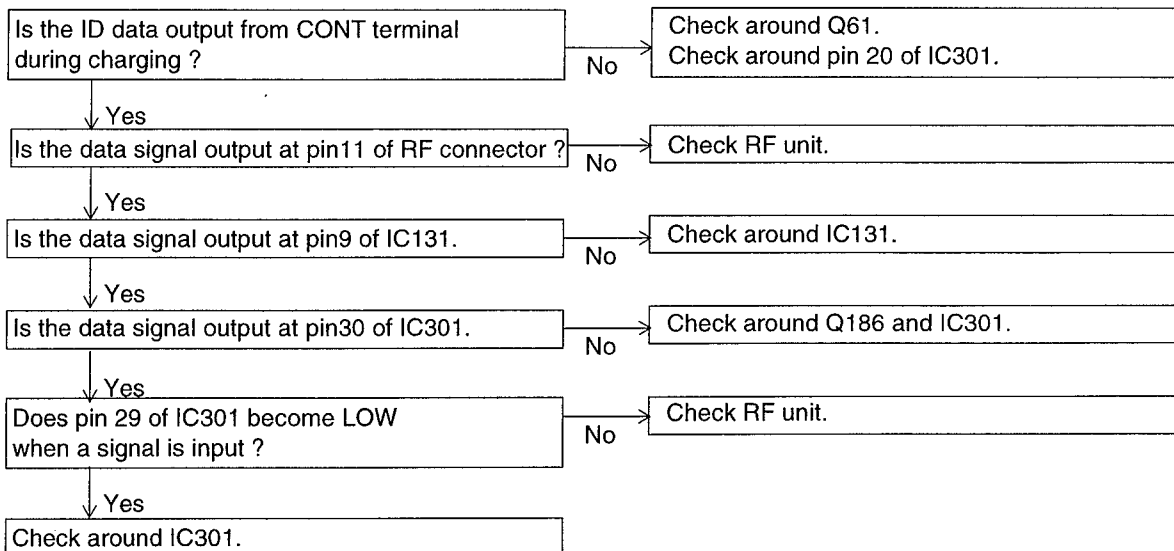
(5) No link (portable handset TX)



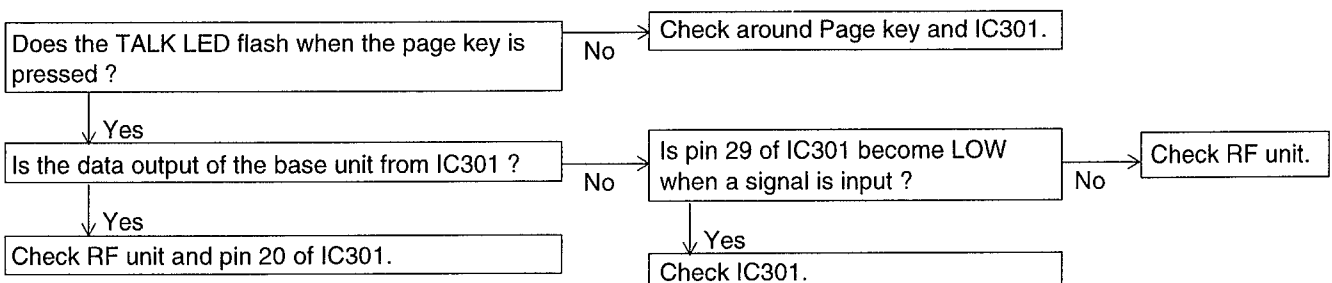
(6) No link (portable handset RX)



(7) No link (Base unit RX)



(8) No link (Base unit TX)



CABINET AND ELECTRICAL PARTS (Portable Handset)

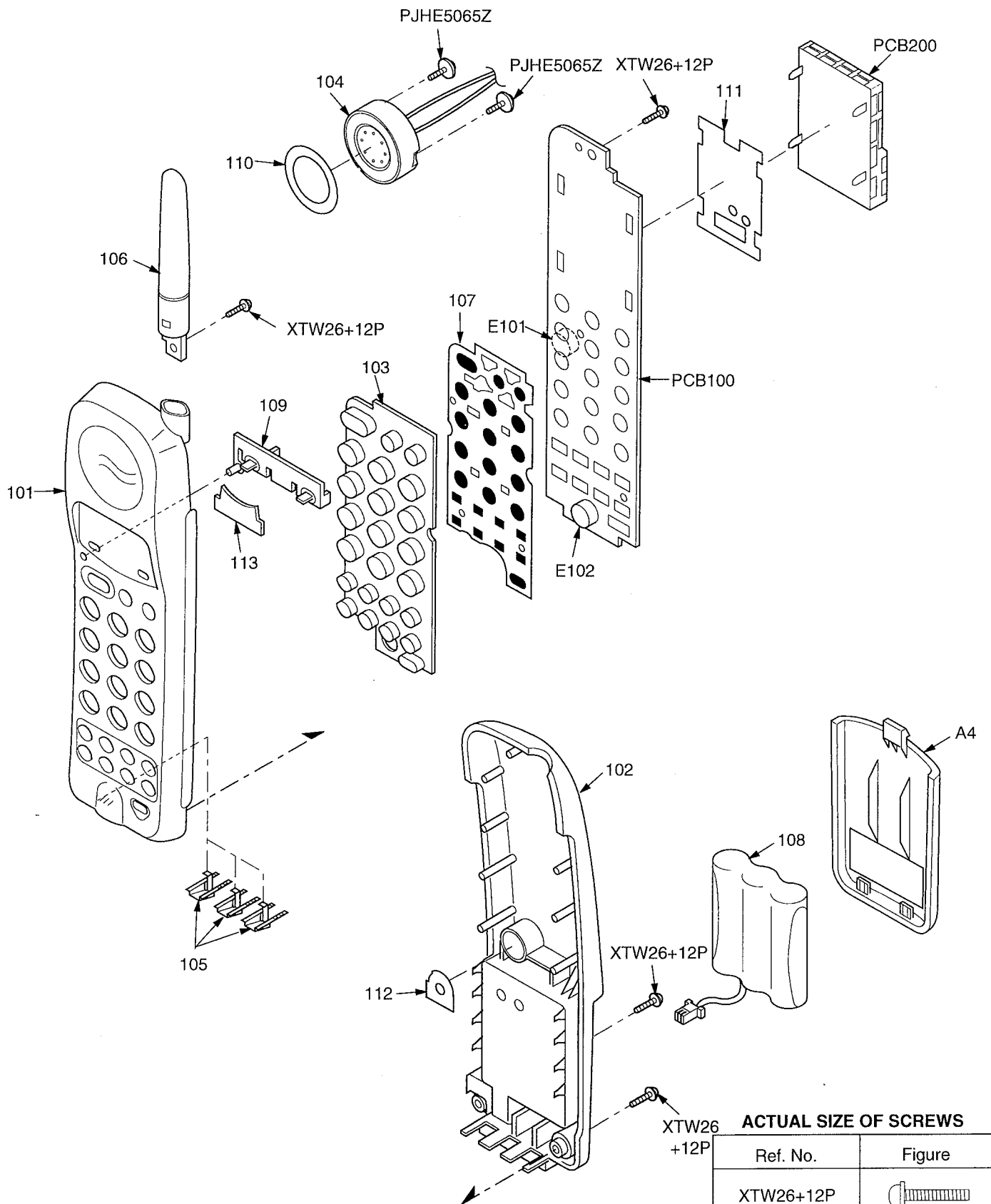


Fig. 42

ACCESSORIES AND PACKING MATERIALS

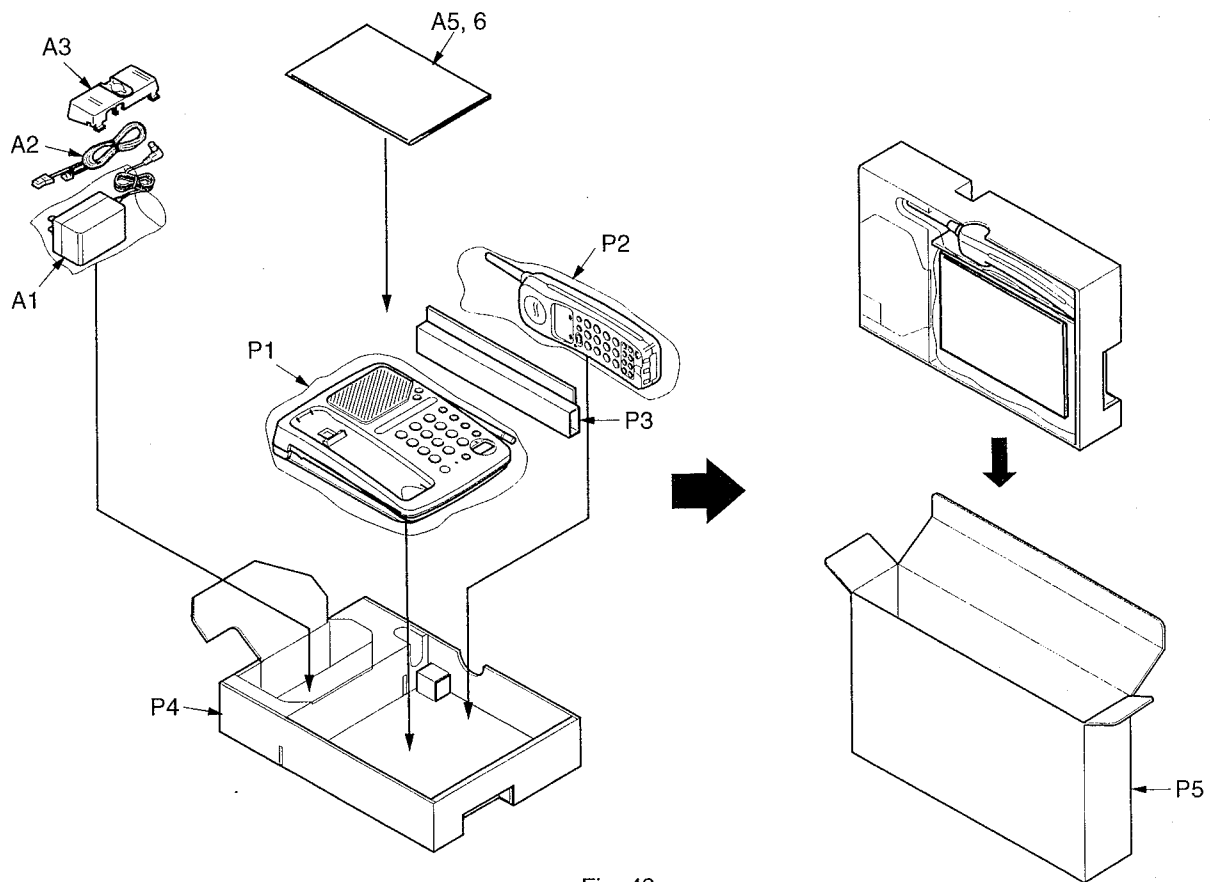


Fig. 43

TOOL

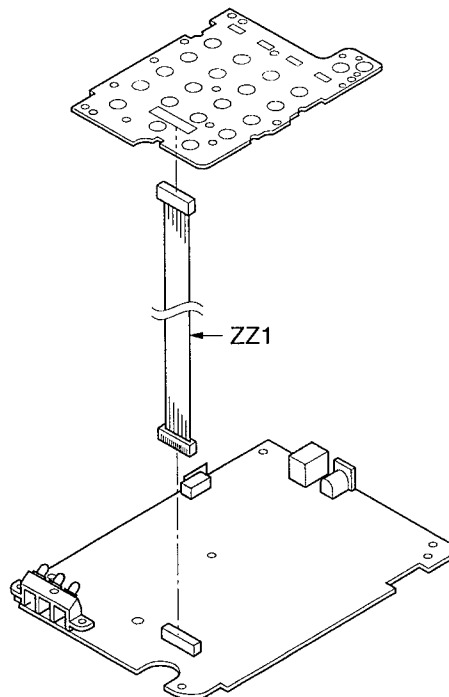


Fig. 44

KX-TC911-B/KX-TC911-W

This replacement parts list is U.S.A. version only. Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Base Unit

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention.

After the end of this period, the assembly will no longer be available.

2. Important safety notice.

Components identified by a Δ mark special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

3. The S mark indicates service standard parts and may differ from production parts.

4. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in ohms (Ω) K=1000 Ω , M=1000K Ω

All capacitors are in MICRO FARADS (μ F) P= μ F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT,PQCBC : Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG : Polyester
PQCUV:Chip	ECEA,ECSZ : Electrolytic
ECQMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG	ECSZ Type	Others	
ECQV Type				
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

Ref. No.	Part No.	Part Name & Description	Pcs/Set
MAIN P.C.BOARD PARTS			
PCB1	PQWP1TC911BH	P.C.BOARD ASS'Y (RTL)	1
		(ICS)	
IC101	PQVIJM4560M	IC	1
IC131	AN6165K	IC	1
IC181	PQVINJM2904F	IC	1
IC201	PQVISC77655S	IC	1
IC301	MN150832KB1	IC	1
		(TRANSISTORS)	
Q11	2SA1627	TRANSISTOR(SI)	1
Q12	2SC1740S	TRANSISTOR(SI)	1
Q21	2SD2136	TRANSISTOR(SI)	1
Q22	2SD1994A	TRANSISTOR(SI)	1
Q31	2SD601R	TRANSISTOR(SI)	1
Q32	2SB709A	TRANSISTOR(SI)	1
Q33	2SD601R	TRANSISTOR(SI)	1
Q61	2SD1991A	TRANSISTOR(SI)	1
Q62	2SD1758Q	TRANSISTOR(SI)	1
Q63	2SD601R	TRANSISTOR(SI)	1
Q151	2SD601R	TRANSISTOR(SI)	1
Q167	PQVTD143Z106	TRANSISTOR(SI)	1
Q168	2SD1819A	TRANSISTOR(SI)	1
Q201	PQVTD143Z106	TRANSISTOR(SI)	1
Q202	PQVTD143Z106	TRANSISTOR(SI)	1
Q203	2SD601R	TRANSISTOR(SI)	1
Q204	2SD601R	TRANSISTOR(SI)	1
Q205	PQVTD143Z106	TRANSISTOR(SI)	1
Q206	2SD601R	TRANSISTOR(SI)	1
Q207	PQVTFB1A4M	TRANSISTOR(SI)	1
Q208	2SD601R	TRANSISTOR(SI)	1
		(DIODES)	
D11	PQVDS1ZB40F1	DIODE(SI)	1
D13	1SS119	DIODE(SI)	1
D22	MA4082	DIODE(SI)	1
D23	MA4068	DIODE(SI)	1
D31	1SS119	DIODE(SI)	1
D32	1SS119	DIODE(SI)	1
D33	MA4047	DIODE(SI)	1
D34	1SS119	DIODE(SI)	1
D35	1SS119	DIODE(SI)	1
D36	MA8220	DIODE(SI)	1
D61	1SS119	DIODE(SI)	1
D65	MA4300	DIODE(SI)	1
D67	MA8220	DIODE(SI)	1
D68	MA8220	DIODE(SI)	1
D69	MA8220	DIODE(SI)	1
D151	PQVDRB751V4	DIODE(SI)	1
D152	PQVDRB751V4	DIODE(SI)	1
D166	1S2076	DIODE(SI)	1
D202	MA4300	DIODE(SI)	1
D204	MA110	DIODE(SI)	1
D331	1SS119	DIODE(SI)	1
D341	1SS119	DIODE(SI)	1
D361	1SS119	DIODE(SI)	1
D362	1SS119	DIODE(SI)	1
DA	1SS119	DIODE(SI)	1
		(COILS AND TRANSFORMERS)	
L61	PQLQZK3R3K	COIL	1
L62	PQLQZK330KT	COIL	1
L64	PQLQZK3R3K	COIL	1
L65	PQLQZK330KT	COIL	1
L301	PQLQZK330KT	COIL	1
L362	PQLQR2M3N3K	COIL	1

Ref. No.	Part No.	Part Name & Description	Pcs/Set
CABINET AND ELECTRICAL PARTS			
1	PQKM10324Z1	UPPER CABINET (for Black Version)	1
1	PQKM10324Z2	UPPER CABINET (for White Version)	1
2	PQYF10126J1	LOWER CABINET (for Black Version)	1
2	PQYF10126J3	LOWER CABINET (for White Version)	1
3	PQYT10010Z1	KEY BUTTON (for Black Version)	1
3	PQYT10010Z2	KEY BUTTON (for White Version)	1
4	PQSA10047Z	ANTENNA	1
5	PQSX10075Z	KEY SWITCH	1
6	PQSX10077Z	KEY SWITCH	1
7	PQBX10303Z	BUTTON (for Black Version)	1
7	PQBX10303Y	BUTTON (for White Version)	1
8	PQGT13230Z	NAME PLARE (for Black Version)	1
8	PQGT13231Z	NAME PLARE (for White Version)	1
9	PQKE10072Z1	HOOK (for Black Version)	1
9	PQKE10072Z2	HOOK (for White Version)	1
10	PQAS65P37Z	SPEAKER	1

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
T1	PQLT8F3A	TRANSFORMER Δ	1	R67	ERDS2TJ473	47K	1
		(VARIABLE RESISTORS)		R68	PQ4R10XJ150	15	1
VR1	EVNDXAA03B24	VARIABLE RESISTOR	1	R69	PQ4R10XJ150	15	1
VR2	EVNDXAA03B54	VARIABLE RESISTOR	1	R70	ERDS1TJ151	150	1
VR3	EVNDXAA03B53	VARIABLE RESISTOR	1	R71	ERDS1TJ151	150	1
		(SWITCH)		R72	PQ4R10XJ180	18	1
S302	PQSS3A17W	SWITCH	1	R74	ERJ3GEYJ121	120	1
		(VARISTORS)		R76	ERJ3GEYJ103	10K	1
SA11	PQVDDSS301L	VARISTOR Δ	1	R101	ERDS2TJ154	150K	1
SA12	PQVDDSP272MR	VARISTOR Δ	1	R102	ERJ3GEYJ334	330K	1
		(CRYSTAL OSCILLATOR)		R103	ERJ3GEYJ103	10K	1
X301	PQVBKBR3.58M	CRYSTAL OSCILLATOR	1	R106	ERJ3GEYJ183	18K	1
		(POSISTOR)		R107	ERJ3GEYJ273	27K	1
P11	PQRPAR390N	THERMISTOR Δ S	1	R108	ERJ3GEYJ102	1K	1
		(PHOTO COUPLERS)		R116	ERJ3GEYJ472	4.7K	1
PC11	PQVIPS25051P	PHOTO COUPLER Δ S	1	R118	ERJ3GEYJ333	33K	1
PC12	PQVITLP627	PHOTO COUPLER Δ	1	R119	ERJ3GEYJ274	270K	1
PC13	PQVIPCB17CD	PHOTO COUPLER	1	R120	ERDS2TJ331	330	1
		(JACKS)		R126	ERJ3GEYJ100	10	1
JK1	PQJJ1T022Z	JACK, DC IN	1	R127	ERJ3GEYJ823	82K	1
JK2	PQJJ1T008Y	JACK, TEL	1	R128	ERJ3GEYJ104	100K	1
		(ELECTRICAL PARTS)		R131	ERJ3GEYJ333	33K	1
E1	PQJM122Z	MICROPHONE	1	R132	ERJ3GEYJ563	56K	1
E2	PQMG10020Z	SPACER	1	R133	ERJ3GEYJ154	150K	1
E3	PQJT10147Y	CHARGE TERMINAL	1	R134	ERJ3GEYJ105	1M	1
CN1	PQJP16B66Z	CONNECTOR	1	R135	ERJ3GEYJ154	150K	1
		(RESISTORS)		R136	ERJ3GEYJ392	3.9K	1
R11	ERDS2TJ473	47K	1	R137	ERJ3GEYJ123	12K	1
R12	ERJ3GEYJ153	15K	1	R138	ERJ3GEY0R00	0	1
R13	PQ4R10XJ104	100K	1	R139	ERJ3GEYJ223	22K	1
R14	PQ4R10XJ122	1.2K	1	R140	ERJ3GEYJ683	68K	1
R15	ERJ3GEYJ472	4.7K	1	R141	ERJ3GEY0R00	0	1
R16	PQ4R10XJ683	68K	1	R142	ERJ3GEYJ333	33K	1
R18	PQ4R10XJ333	33K	1	R151	ERJ3GEYJ563	56K	1
R19	PQ4R10XJ682	6.8K	1	R152	ERJ3GEYJ123	12K	1
R20	PQ4R10XJ472	4.7K	1	R153	ERJ3GEYJ153	15K	1
R21	ERJ3GEYJ561	560	1	R154	ERJ3GEYJ153	15K	1
R22	ERJ3GEYJ221	220	1	R155	PQ4R18XJ000	0	1
R31	ERJ3GEYJ272	2.7K	1	R156	ERJ3GEYJ393	39K	1
R32	PQ4R10XJ124	120K	1	R157	ERJ3GEYJ472	4.7K	1
R33	ERJ3GEYJ103	10K	1	R158	ERJ3GEYJ224	220K	1
R34	ERJ3GEYJ104	100K	1	R159	PQ4R10XJ472	4.7K	1
R35	ERJ3GEYJ472	4.7K	1	R160	ERJ3GEYJ100	10	1
R36	ERJ3GEYJ104	100K	1	R161	PQ4R10XJ122	1.2K	1
R37	ERJ3GEYJ104	100K	1	R162	PQ4R10XJ471	470	1
R38	ERJ3GEYJ104	100K	1	R163	ERJ3GEYJ104	100K	1
R39	PQ4R10XJ104	100K	1	R166	ERJ3GEYJ332	3.3K	1
R40	ERJ3GEYJ102	1K	1	R167	ERJ3GEYJ562	5.6K	1
R61	ERJ3GEYJ103	10K	1	R182	ERJ3GEYJ104	100K	1
R62	ERJ3GEYJ104	100K	1	R183	ERJ3GEYJ104	100K	1
R63	ERDS2TJ681	680	1	R184	ERJ3GEYJ103	10K	1
R64	ERD25TJ472	4.7K	1	R185	ERJ3GEYJ822	8.2K	1
R65	ERD25TJ473	47K	1	R186	ERJ3GEYJ103	10K	1
R66	ERJ3GEYJ104	100K	1	R187	ERJ3GEYJ563	56K	1
				R188	ERJ3GEYJ103	10K	1
				R189	ERDS2TJ102	1K	1
				R190	ERJ3GEYJ103	10K	1
				R191	ERJ3GEYJ104	100K	1
				R192	ERJ3GEYJ104	100K	1
				R194	ERJ3GEYJ101	100	1
				R195	ERJ3GEYJ101	100	1
				R196	ERJ3GEYJ102	1K	1
				R197	ERJ3GEY0R00	0	1
				R198	ERJ3GEYJ104	100K	1
				R199	ERJ3GEYJ104	100K	1
				R200	ERJ3GEYJ682	6.8K	1
				R201	ERJ3GEYJ562	5.6K	1
				R202	ERJ3GEYJ303	30K	1
				R203	ERJ3GEYJ683	68K	1
				R204	ERJ3GEYJ821	820	1
				R205	ERJ3GEYJ225	2.2M	1
				R206	ERJ3GEYJ275	2.7M	1

KX-TC911-B/KX-TC911-W

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

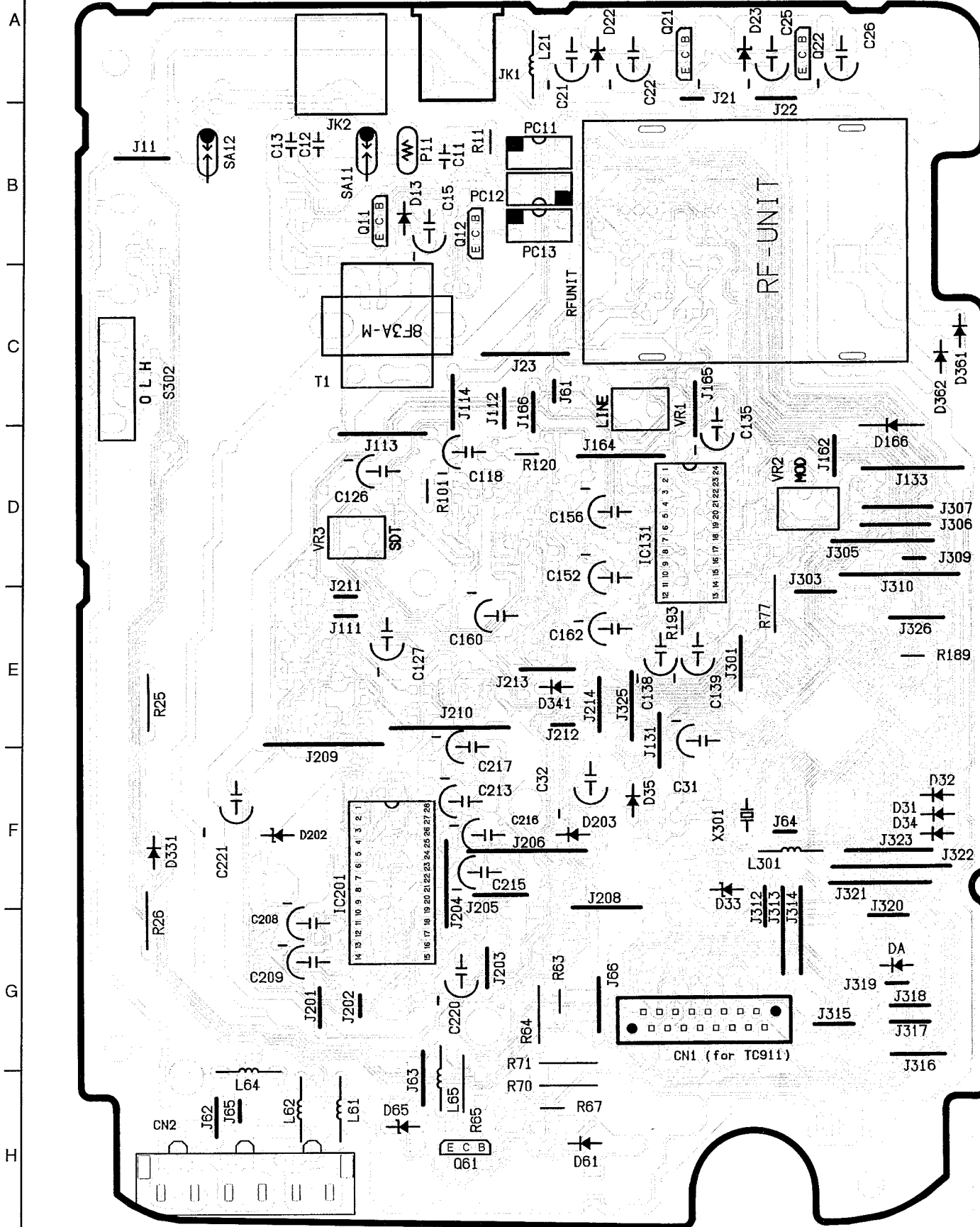
Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Part Name & Description	Pcs/Set
R207	ERJ3GEYJ104	100K	1			(CAPACITORS)	
R208	ERJ3GEYJ472	4.7K	1	C11	ECQE2224KF	0.22	1
R209	ERJ3GEYJ222	2.2K	1	C12	ECKD2H681KB	680P	S 1
R210	ERJ3GEYJ183	18K	1	C13	ECKD2H681KB	680P	S 1
R211	ERJ3GEYJ332	3.3K	1	C14	PQCUV1H103KB	0.01	1
R212	ERJ3GEYJ104	100K	1	C15	ECEA1EU221	220	1
R213	ERJ3GEYJ472	4.7K	1	C16	PQCUV1H103ZF	0.01	1
R215	ERJ3GEYJ104	100K	1	C17	PQCUV1C105ZF	1	1
R216	ERJ3GEYJ100	10	1	C21	ECEA1EU101	100	1
R217	ERJ3GEYJ104	100K	1	C22	ECEA1CU221	220	1
R218	ERJ3GEYJ153	15K	1	C25	ECEA1AU101	100	1
R219	ERJ3GEYJ153	15K	1	C26	ECEA1AU101	100	1
R220	ERJ3GEYJ104	100K	1	C27	PQCUV1H103ZF	0.01	1
R221	ERJ3GEYJ103	10K	1	C31	ECEA0JU102	1000	1
R222	ERJ3GEYJ333	33K	1	C32	ECEA0JU102	1000	1
R223	ERJ3GEYJ472	4.7K	1	C33	PQCUV1C224ZF	0.22	1
R224	ERJ3GEYJ684	680K	1	C34	ECUV1C104ZEV	0.1	1
R225	ERJ3GEYJ151	150	1	C35	ECUV1C104ZEV	0.1	1
R226	ERJ3GEY0R00	0	1	C37	ECUV1C104ZEV	0.1	1
R227	ERJ3GEYJ473	47K	1	C61	PQCUV1H103ZF	0.01	1
R228	ERJ3GEYJ103	10K	1	C62	PQCUV1H102J	0.001	S 1
R230	ERJ3GEYJ682	6.8K	1	C63	PQCUV1H103ZF	0.01	1
R231	ERJ3GEYJ333	33K	1	C64	PQCUV1H102J	0.001	S 1
R232	ERJ3GEYJ103	10K	1	C65	PQCUV1H103ZF	0.01	1
R233	ERJ3GEYJ472	4.7K	1	C66	PQCUV1H103ZF	0.01	1
R234	ERJ3GEYJ683	68K	1	C101	PQCUV1E104MD	0.1	1
R235	ERJ3GEYJ820	82	1	C102	PQCUV1H471JC	470P	S 1
R236	PQ4R10XJ473	47K	1	C103	PQCUV1H101JC	100P	1
R238	ERJ3GEYJ104	100K	1	C104	PQCUV1H223KB	0.022	1
R240	ERJ3GEYJ472	4.7K	1	C106	ECUV1A105ZEV	1	1
R241	ERJ3GEYJ224	220K	1	C108	PQCUV1E473MD	0.047	S 1
R242	ERJ3GEYJ821	820	1	C109	PQCUV1H153KB	0.015	1
R243	ERJ3GEYJ273	27K	1	C116	PQCUV1E104MD	0.1	1
R301	ERJ3GEYJ471	470	1	C117	PQCUV1E104MD	0.1	1
R302	ERJ3GEYJ223	22K	1	C118	ECEA1HU220	22	S 1
R305	ERJ3GEYJ122	1.2K	1	C126	ECEA1CK101	100	S 1
R306	ERJ3GEYJ222	2.2K	1	C127	ECEA1CK101	100	S 1
R307	ERJ3GEYJ104	100K	1	C131	PQ4R10XJ333	33K	1
R308	ERJ3GEYJ103	10K	1	C132	PQCUV1H152KB	0.0015	1
R309	ERJ3GEYJ105	1M	1	C134	PQCUV1H151JC	150P	1
R311	ERJ3GEYJ563	56K	1	C135	ECEA1CKS220	22	S 1
R315	ERJ3GEYJ124	120K	1	C136	PQCUV1E104MD	0.1	1
R316	ERJ3GEYJ563	56K	1	C137	PQCUV1E104MD	0.1	1
R317	ERJ3GEYJ273	27K	1	C138	ECEA1VKS4R7	4.7	S 1
R318	ERJ3GEYJ153	15K	1	C139	ECEA1CKS100	10	S 1
R319	ERJ3GEYJ102	1K	1	C140	PQCUV1C105ZF	1	1
R320	ERJ3GEYJ473	47K	1	C142	PQCUV1C683MD	0.068	1
R321	ERJ3GEYJ103	10K	1	C144	PQCUV1H562KB	0.0056	1
R322	ERJ3GEYJ392	3.9K	1	C151	PQCUV1E104MD	0.1	1
R325	ERJ3GEYJ103	10K	1	C152	ECEA1AU101	100	S 1
R326	ERJ3GEYJ104	100K	1	C153	PQCUV1H472KB	0.0047	1
R327	ERJ3GEYJ103	10K	1	C154	PQCUV1H681JC	680P	S 1
R336	ERJ3GEYJ105	1M	1	C155	PQCUV1H682KB	0.0068	1
R337	PQ4R10XJ472	4.7K	1	C156	ECEA1VKS4R7	4.7	S 1
R338	PQ4R10XJ472	4.7K	1	C158	ECUV1C104KBV	0.1	1
R339	PQ4R10XJ103	10K	1	C159	PQCUV1E333MD	0.033	S 1
R341	ERJ3GEYJ105	1M	1	C160	ECEA1AU101	100	1
R342	ERJ3GEYJ683	68K	1	C162	ECEA1AU102	1000	1
R343	ERJ3GEYJ104	100K	1	C168	PQ4R10XJ822	8.2K	1
R359	ERJ3GEYJ103	10K	1	C170	PQCUV1C105ZF	1	1
J195	ERJ3GEY0R00	0	1	C184	PQCUV1E104MD	0.1	1
J196	PQ4R18XJ000	0	1	C185	PQCUV1C105ZF	1	1
J197	ERJ3GEY0R00	0	1	C186	PQCUV1E104MD	0.1	1
J302	PQ4R18XJ000	0	1	C187	PQCUV1H222KB	0.0022	1
J304	PQ4R18XJ000	0	1	C188	PQCUV1H153KB	0.015	1
J308	PQ4R18XJ000	0	1	C191	PQCUV1H102J	0.001	S 1
J327	ERJ3GEY0R00	0	1	C193	PQCUV1H103ZF	0.01	1
C236	PQ4R10XJ000	0	1	C194	PQCUV1H101JC	100P	1
C361	PQ4R10XJ000	0	1	C195	PQCUV1H101JC	100P	1
C105	PQ4R10XJ000	0	1	C196	PQCUV1H101JC	100P	1
				C200	PQCUV1E104MD	0.1	1
				C201	PQCUV1E333MD	0.033	S 1

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

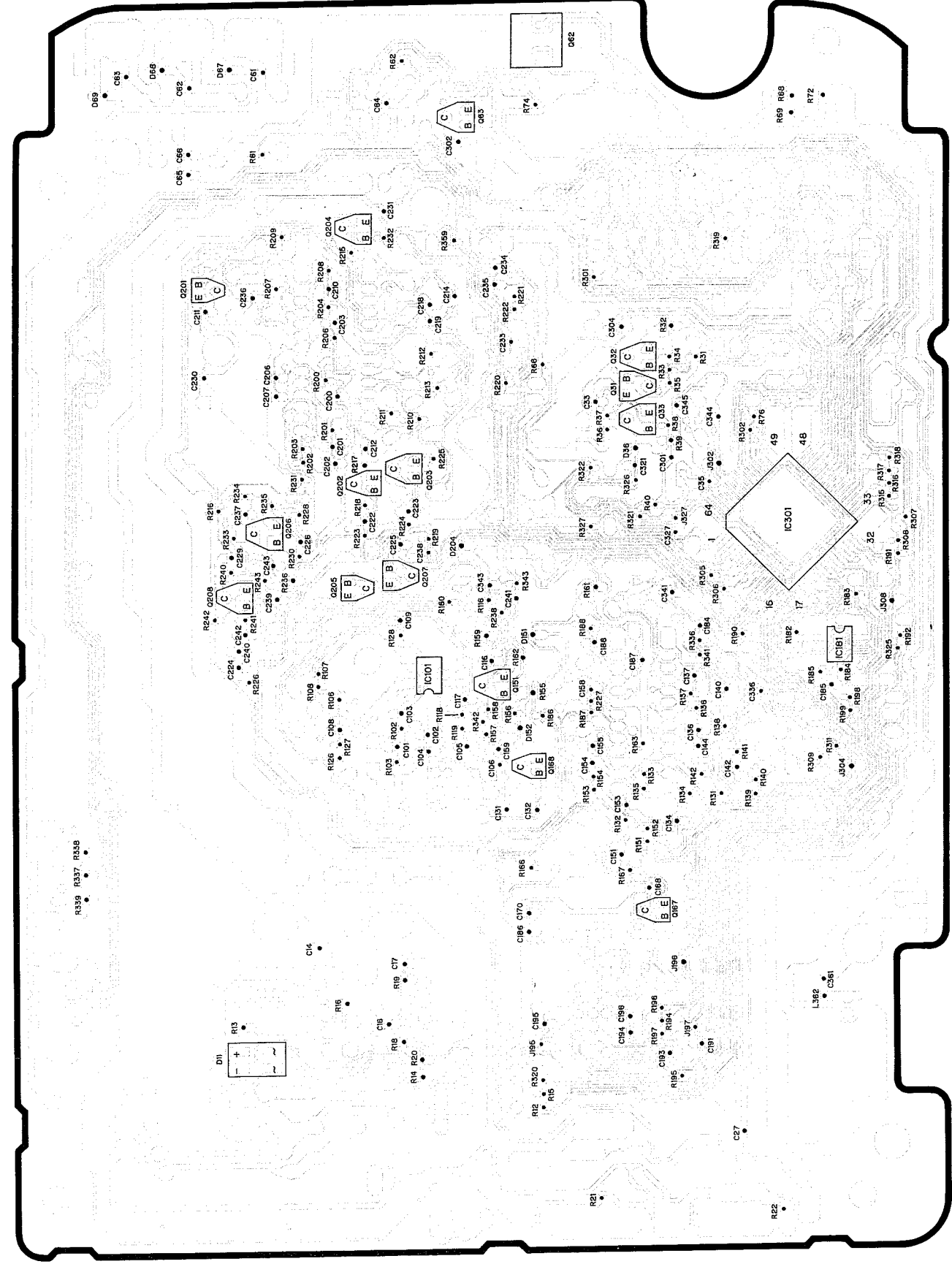
Ref. No.	Part No.	Part Name & Description	Pcs/Set
C202	PQCUV1E104MD	0.1	1
C203	PQCUV1C683MD	0.068	1
C206	PQCUV1C105ZF	1	1
C207	PQCUV1C105ZF	1	1
C208	ECEA0JKS470	47	1
C209	ECEA1VKS4R7	4.7	S 1
C210	PQCUV1C683MD	0.068	1
C211	PQCUV1H393KB	0.039	S 1
C212	PQCUV1C105ZF	1	1
C213	ECEA1CKS100	10	S 1
C214	PQCUV1H393KB	0.039	S 1
C215	ECEA1VKS4R7	4.7	S 1
C216	ECEA0JKS470	47	1
C217	ECEA1AKA221	220	1
C218	PQCUV1E104MD	0.1	1
C219	PQCUV1C105ZF	1	1
C220	ECEA1CK101	100	S 1
C221	ECEA1CU471	470	1
C222	PQCUV1H223KB	0.022	1
C223	PQCUV1H331JC	330P	1
C225	PQCUV1H183KB	0.018	1
C226	PQCUV1H153KB	0.015	1
C229	PQCUV1H472KB	0.0047	1
C230	PQCUV1H103ZF	0.01	1
C231	PQCUV1E104MD	0.1	1
C232	PQCUV1H222KB	0.0022	1
C233	ECUV1H821KBV	820P	1
C234	PQCUV1H103ZF	0.01	1
C235	PQCUV1H103ZF	0.01	1
C237	PQCUV1H102J	0.001	S 1
C238	ECUV1H103KBV	0.01	1
C239	PQCUV1H103KB	0.01	1
C240	PQCUV1H223KB	0.022	1
C241	PQCUV1E104MD	0.1	S 1
C242	PQCUV1H181JC	180P	1
C243	PQCUV1E473MD	0.047	S 1
C301	PQCUV1E104MD	0.1	S 1
C302	PQCUV1E104MD	0.1	S 1
C304	PQCUV1H103KB	0.01	1
C321	PQCUV1H472KB	0.0047	1
C327	ECUV1H103KBV	0.01	1
C336	ECUV1H101JCV	100P	1
C341	PQCUV1E104MD	0.1	S 1
C343	PQCUV1E333MD	0.033	S 1
C344	PQCUV1H330JC	33P	1
C345	PQCUV1H330JC	33P	1
OPERATIONAL P.C.BOARD PARTS			
PCB2	PQWP2TC911BH	P.C.BOARD ASS'Y (RTL)	1
LED302	PQVDPY1112H	(LEDS) LED	1
LED303	PQVDBR1112H	LED	1
CN1	PQJS16B15Z	(CONNECTOR) CONNECTOR	1
RF UNIT PARTS			
PCB3	PQLZ10002Z	P.C.BOARD ASS'Y (RTL)	1

CIRCUIT BOARD (Base Unit)

(Component View)



(Flow Solder Side View)



BLOCK DIAGRAM (Base Unit)

(Main P.C. Board)

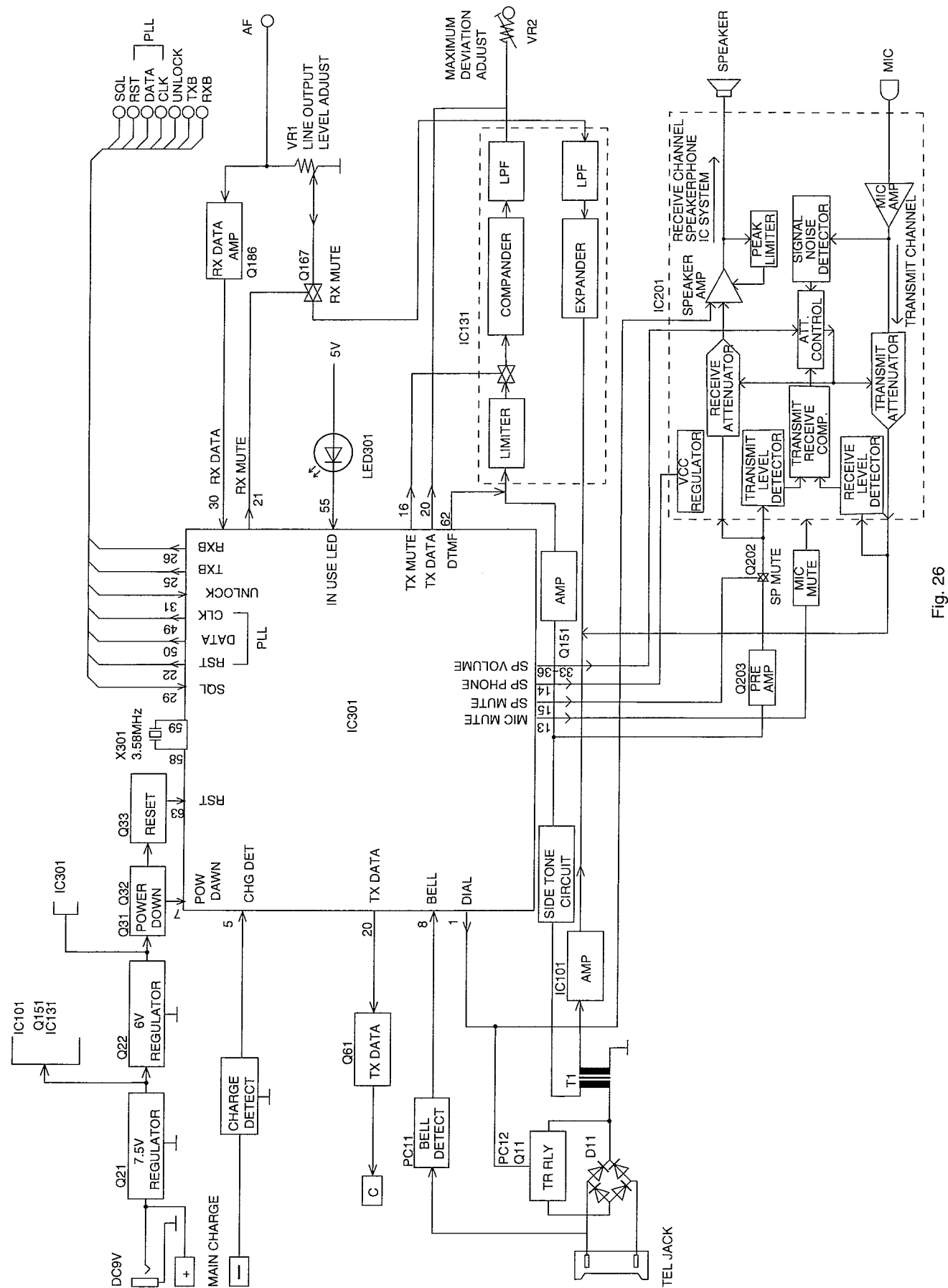


Fig. 26

NEW CIRCUIT OPERATION (Base Unit)

1. Power Supply Circuit

As indicated in the illustration, the various voltages are supplied constantly to their respective blocks the power supply terminals of the CPU (IC301) are Q22. A time constant is used to compensate for momentary dropouts in the AC power supply.

Circuit Diagram

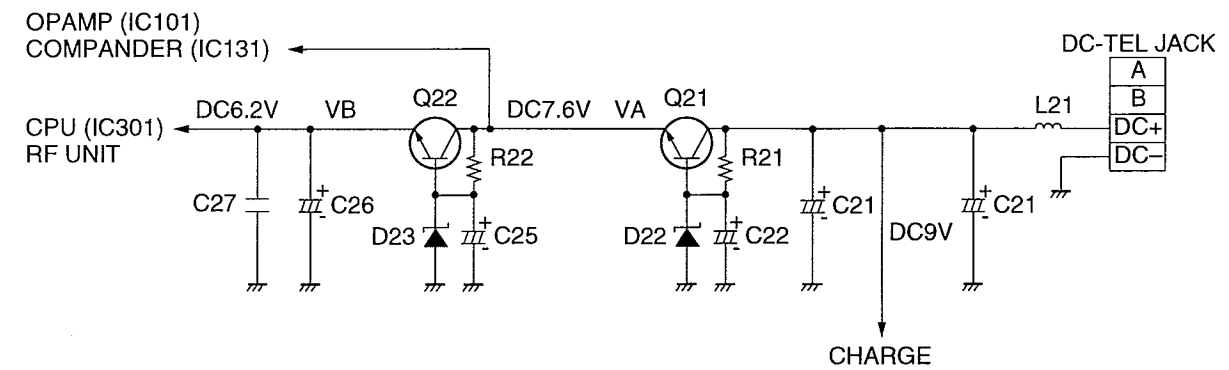


Fig. 27

2. Charge Circuit

The voltage from the AC is supplied to the main charge circuits. Ultra charge (150 mA) of maximum 4 hours is started soon after the portable handset is placed on the base unit. Then it changes to normal charge (60 mA on the average) of 10 hours. Finally the mode changes to trickle charge (18 mA) to prevent overcharging.

Circuit Diagram

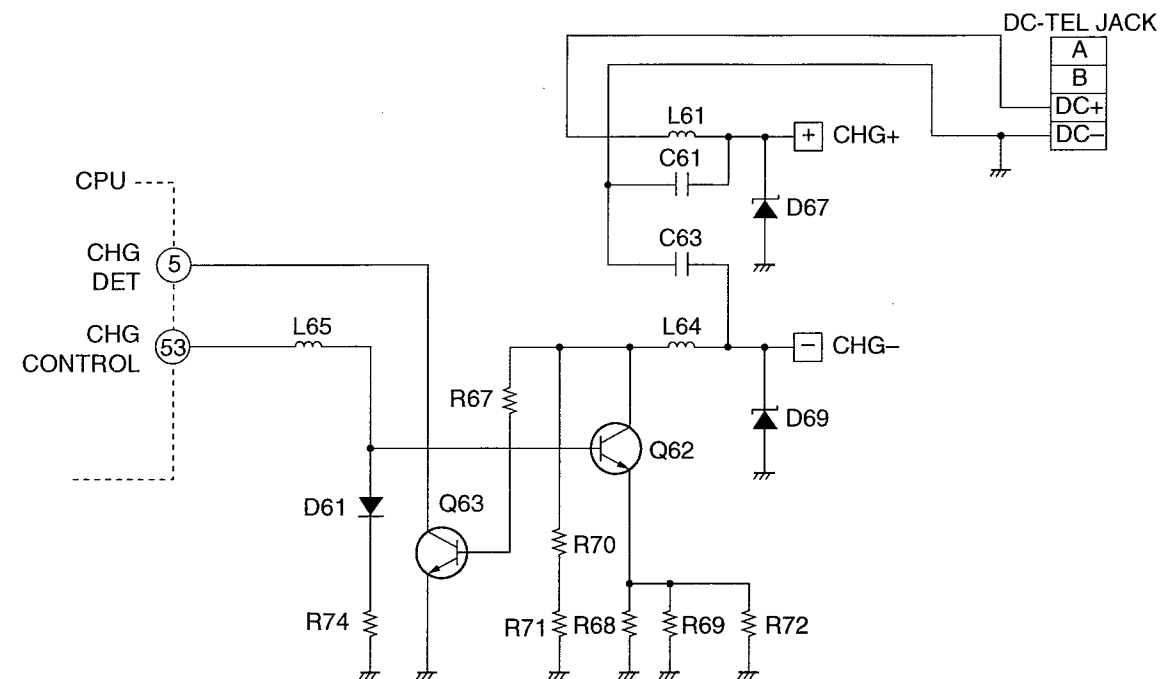


Fig. 28

3. Bell Detector Circuit

When the Bell signal is input between T/R, the signal of which waveform is shaped through R11→C11→PC11 is input to pin ⑧ of the CPU IC301.

When the CPU detects the Bell signal, pin (55) repeats High/Low fluctuation and then IN USE LED LED301 in use is flashed.

At this time, if the portable unit is charged, the data from pin ⑳ is sent through the control terminal and then the portable unit's ringer is on.

If the portable unit is not charged, the data signal generated by pins ⑳ of the CPU is sent to the portable unit through RF and then the portable unit's ringer is on.

4. Line Interface

In talk status, the DIAL output from pin ① of IC301 changes to low level, causing PC12 and Q11 to turn on and resulting in a line loop. The loop current flows from D11 (+)→Q11→R17, in that order. A pulse signal that repeated switches between high and low level is output from pin ① of the CPU. This switches the line loop on and off, generating the dial pulse signal.

5. DTMF Signal

When the DTMF data from the portable unit is received, the DTMF signal is output from pin ⑥2 of the CPU and sent to the line through Q151, IC101.

6. Line Sending Signal

The AF signal output from the AF terminal of the RF unit is adjusted to the appropriate level by VR1, input to IC131. The RX DATA signal from the portable handset is muted at this point by Q167 to prevent the RX DATA from leaking onto the line. In this way the noise is suppressed. IC131 comprises a 3 kHz LPF and an expander IC. The signal compressed by the portable handset is expanded, recreating it as a normal signal. The output from the expander passes through amplifier Q151 and amplifier IC101 before being input to line transformer T1.

Circuit Diagram

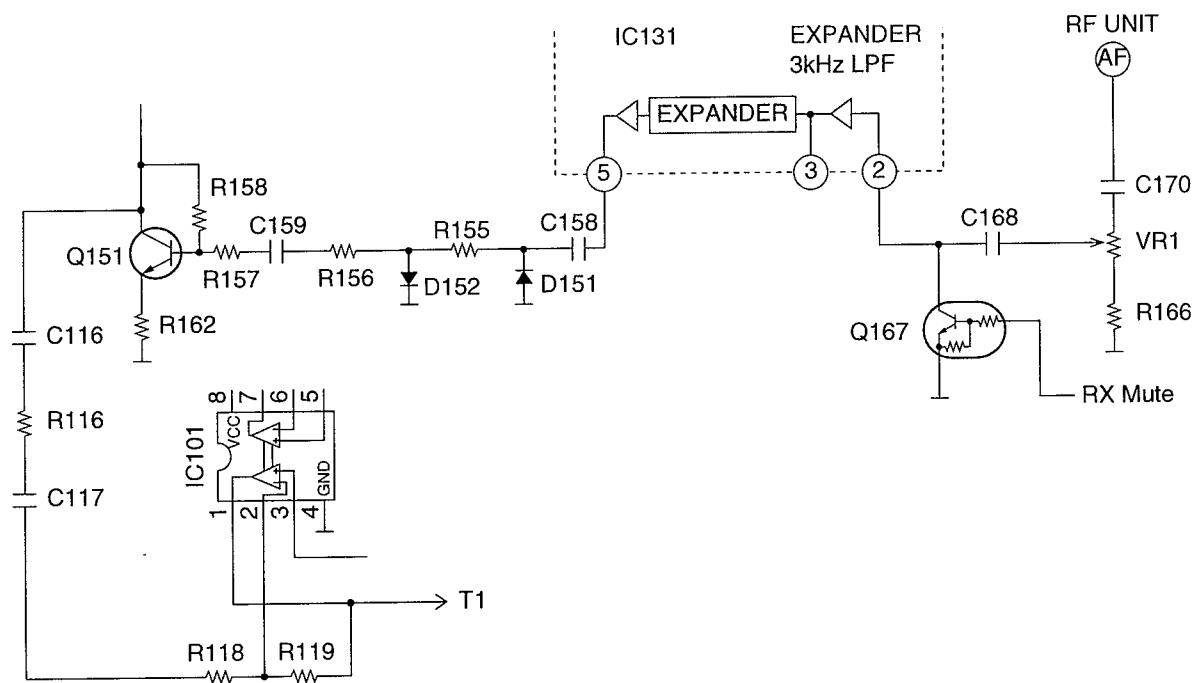


Fig. 29

7. Line Receiving Signal

The audio signal from line transformer T1 is amplified by IC101 and input to IC131. IC131 comprises an amplifier, limiter, mute circuit, compander, and 3 kHz LPF. It performs signal processing. The audio signal output from pin ⑬ of IC131 is mixed with the DTMF, TX DATA, and DIAL signals. At this point (in the talk mode), the DTMF tones, pulse dial tones, and data transferred between the portable handset and base unit is input to the modulator circuit.

Circuit Diagram

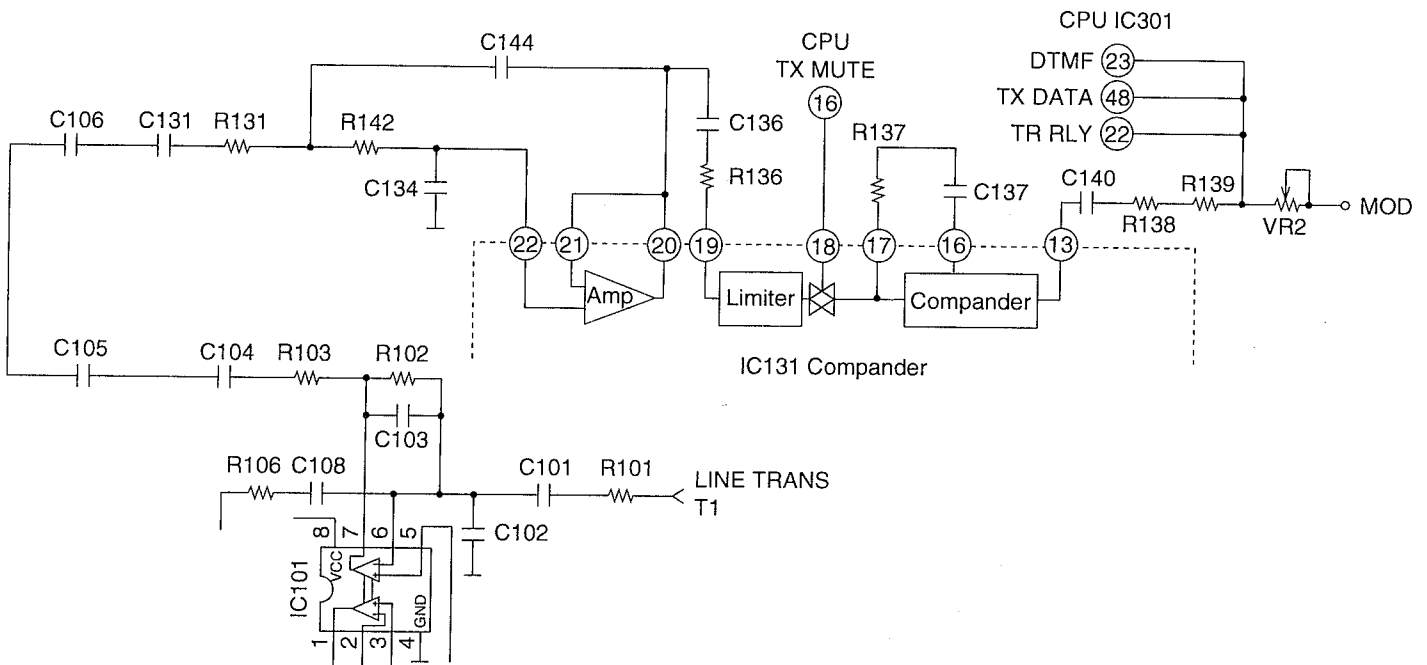


Fig. 30

8. RX Data Circuit

The resulting demodulated data waveform is then input to RX DATA pin ⑳ of the CPU. If there is data from the portable handset during talk operation, the portable handset data is as shown below to prevent the data from leaking onto the line.

Timing Chart

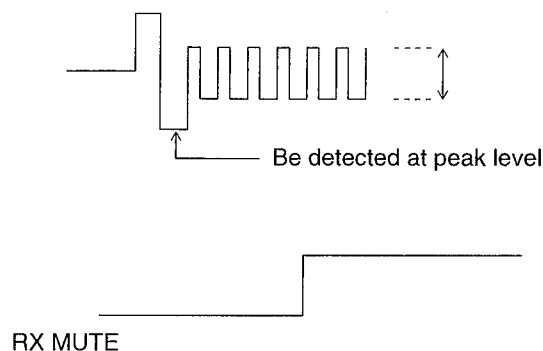


Fig. 31

Circuit Diagram

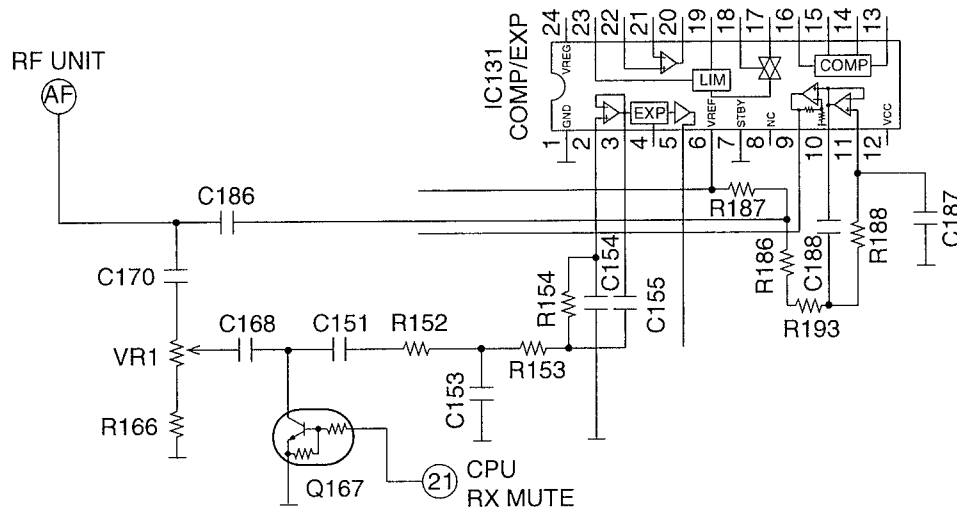


Fig. 32

9. ID code setting

When the portable handset is placed on the base unit, the charge detector operates and ID data is output from pin ②① of the CPU. After passing through data amplifier Q61 and the charge terminal, the data is sent to the portable handset.

10. Speakerphone Circuit

Function:

This circuit controls the automatic switching of the transmitted and received signals, to and from the telephone line, when the unit is used in the hands-free mode.

Circuit Operation:

The speakerphone can only provide a one-way communication path.

In other words, it can either transmit an outgoing signal or receive an incoming signal at a given time, but cannot do both simultaneously. Therefore, a switching circuit is necessary to control the flow of the outgoing and incoming signals.

This switching circuit is contained in IC201 and consists of a Voice Detector, Tx Attenuator, Rx Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the Tx (transmit) or the Rx (receive) signal is louder, and then it processes the signals such that the louder signal is given precedence.

The Voice Detector provides a DC input to the Attenuator Control corresponding to the Tx signal.

The Comparator receives a Tx and a Rx signal, and supplies a DC input to the Attenuator Control corresponding to the Rx signal. The Attenuator Control provides a control signal to the Tx and the Rx Attenuator to switch the appropriate signals on and off. The Attenuator Control also detects the level of the volume control to automatically adjust for changing ambient conditions.

1) Transmission Signal Path

The input signal from the microphone is sent through the circuit via the following path:

- Mic → Pin 9 of IC201 → Pin 27 of IC201 → Pin 3 of IC201 → Pin 4 of IC201 → Telephone Line.

2) Reception signal Path

Signals receive from the telephone line are outputted at the speaker via the following path:

- Telephone Line → Pin 27 of IC201 → Pin 26 of IC201 → Pin 19 of IC201 → Pin 15 of IC201 → Speaker.

3) Control Signal Path:

Control signals for transmission and reception are inputted to IC201 via the following path:

(Transmission Control Signal Path)

- Mic → Pin 9 of IC201 → Pin 10 of IC201 → R204 → C202 → Pin 3 of IC201 → Pin 4 of IC201 → C201 → R201 → Pin 4 of IC201.

(Reception Control Signal Path)

- Telephone Line → Q203 → Q202 → C200 → R200 → Pin 7 of IC201.

4) Transmission/Reception Switching

The comparison result between Tx and Rx outputs as a DC level of IC201 of Pin 25.

Tx level is high Pin 25 = Pin 20 — 6 mV

Rx level is high Pin 25 = Pin 20 — 150 mV

Comparator output is connected to the attenuator control inside of IC1.

5) Voice Detector

The output of the mic amp (Pin 10 of IC201) is supplied to Pin 13 of IC201 as a control signal for the voice detector.

6) Attenuator Control

The attenuator control detects the setting of the volume control through Pin 24 of IC201 to automatically adjust for changing ambient conditions.

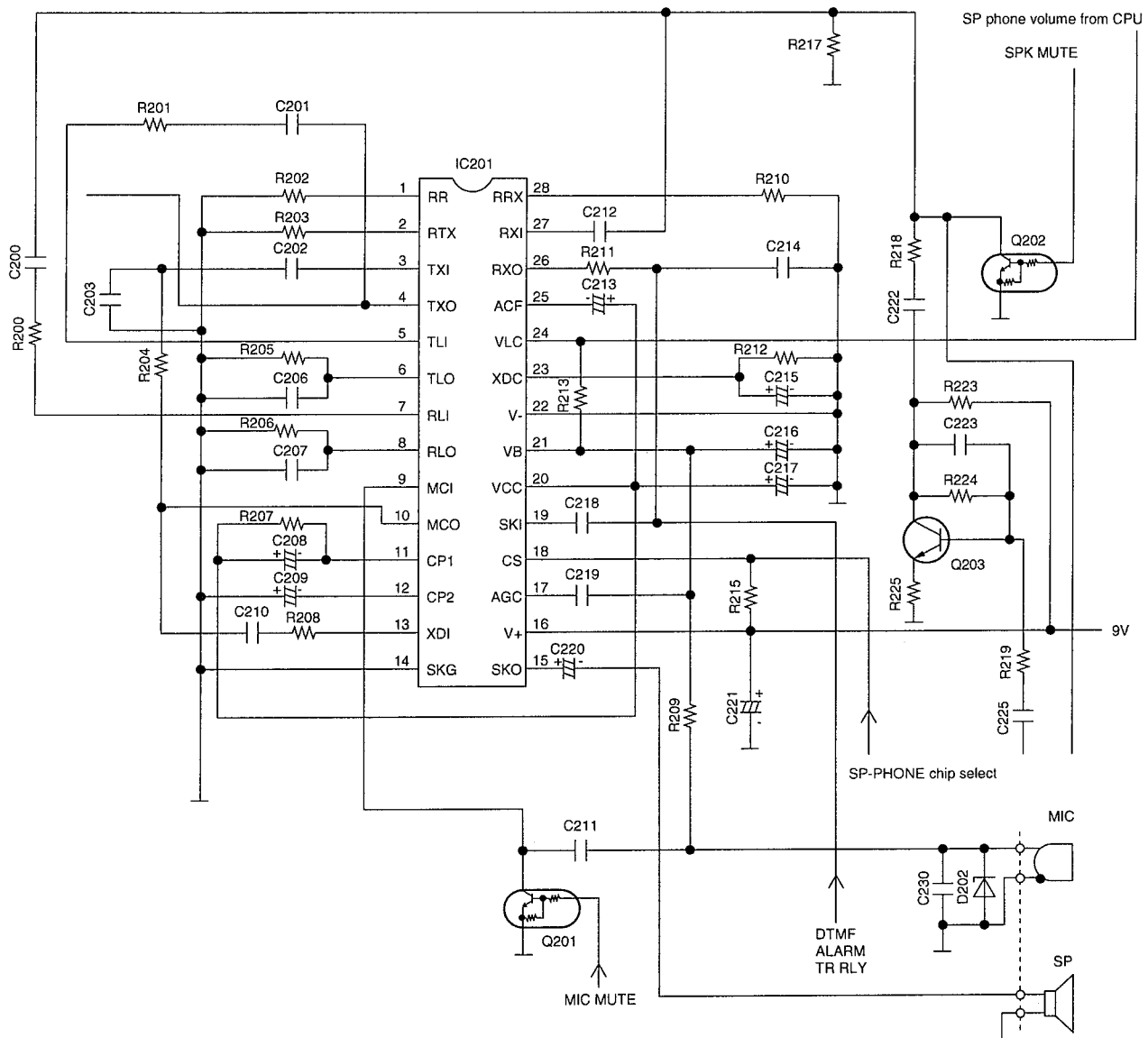
Circuit Diagram

Fig. 33

CABINET AND ELECTRICAL PARTS (Base Unit)

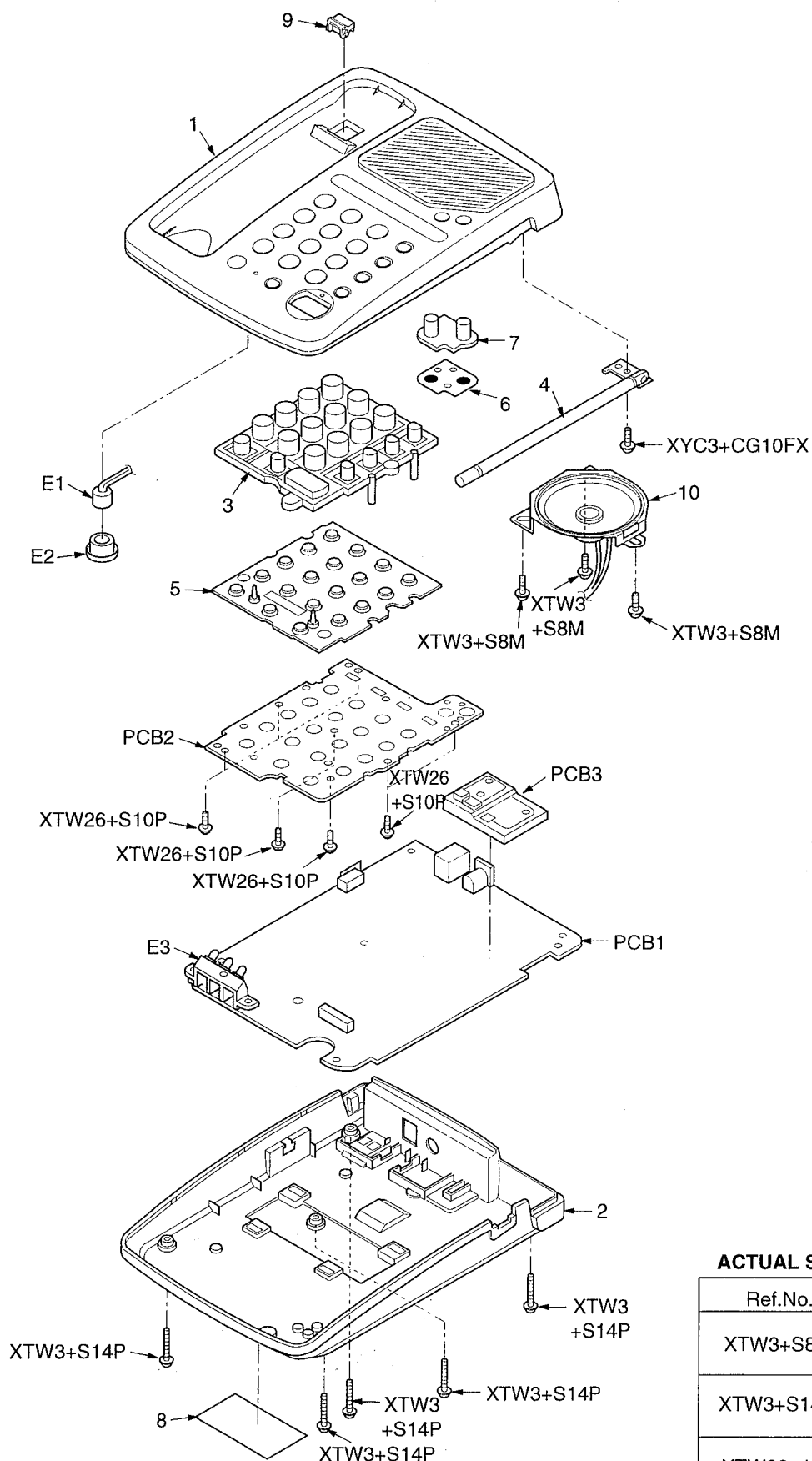

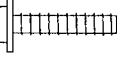

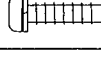


Fig. 41

ACTUAL SIZE OF SCREWS

Ref.No.	Figure
XTW3+S8M	
XTW3+S14P	
XTW26+10P	
XYC3+CG10FX	

KX-TC911-B/KX-TC911-W

This replacement parts list is U.S.A. version only. Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Portable Handset

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention.

After the end of this period, the assembly will no longer be available.

2. Important safety notice.

Components identified by a Δ mark special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

3. The S mark indicates service standard parts and may differ from production parts.

4. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in ohms (Ω) K=1000 Ω , M=1000K Ω

All capacitors are in MICRO FARADS (μ F) P= μ F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECED,ECKD,ECBT,PQCBC : Ceramic
EQS:Styrol	ECQE,ECQV,ECQG : Polyester
PQCUV:Chip	ECEA,ECSZ : Electrolytic
EQMS:Mica	EQQP : Polypropylene

Voltage

ECQ Type	ECQG Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

Ref. No.	Part No.	Part Name & Description	Pcs/Set
MAIN P.C.BOARD PARTS			
PCB100	PQWPTC911BR	P.C.BOARD ASS'Y (RTL)	1
IC201	MN150837KD2	(ICS)	1
IC202	AN6122FA	IC	1
IC203	AN6183SAE1	IC	S 1
Q201	2SD1819A	(TRANSISTORS)	1
Q202	2SD1819A	TRANSISTOR(SI)	1
Q203	PQVDTB123E	TRANSISTOR(SI)	1
Q204	PQVDTDC144TU	TRANSISTOR(SI)	1
Q205	PQVDTDC144TU	TRANSISTOR(SI)	1
Q210	PQVDTDC143E	TRANSISTOR(SI)	1
D201	PQVDPTZTE25	(DIODES)	1
D202	PQVDEC15	DIODE(SI)	1
D203	PQVDRB751V4	DIODE(SI)	1
D205	MA110	DIODE(SI)	1
D206	MA141WK	DIODE(SI)	1
D207	MA8150	DIODE(SI)	1
D208	PQVDPY1112H	LED	1
D209	PQVDPY1112H	LED	1
D212	PQVDBR1112H	LED	1
D213	PQVDPY1112H	LED	1
D214	PQVDPY1112H	LED	1
D215	PQVDPY1112H	LED	1
D216	PQVDPY1112H	LED	1
D218	MA110	DIODE(SI)	1
D220	MA110	DIODE(SI)	1
L201	PQLQR3ER10K	(COILS AND TRANSFORMERS)	1
L202	PQLQR3ER10K	COIL	1
L203	PQLQR3ER10K	COIL	1
L301	MQLRE10NJF	COIL	1
VR201	EVN5ESX50B15	(VARIABLE RESISTORS)	1
VR202	EVN5ESX50B15	VARIABLE RESISTOR	1
VR203	EVN5ESX50B54	VARIABLE RESISTOR	1
X201	PQVBTCC3.99M	(CRYSTAL OSCILLATORS)	1
X202	PQVCL3276N9Z	CRYSTAL OSCILLATOR	1
E101	PQEFBDB111GP	(ELECTRICAL PARTS)	1
E102	PQJM122Z	BUZZER	1
CHG(+)	PQJT10090Z	MICROPHONE	S 1
CHG(-)	PQJT10090Z	BATTERY TERMINAL	S 1
CHG(C)	PQJT10090Z	BATTERY TERMINAL	S 1
CN203	PQJP2D13Z	CONNECTOR	1
R201	ERJ3GEYJ473	(RESISTORS)	1
R202	ERJ3GEYJ103	47K	1
R203	ERJ3GEYJ105	10K	1
R204	ERJ3GEYJ103	1M	1
R205	ERJ3GEYJ103	10K	1
R206	ERJ3GEYJ332	10K	1

Ref. No.	Part No.	Part Name & Description	Pcs/Set
CABINET AND ELECTRICAL PARTS			
101	PQKM10331Z1	FRONT CABINET (for Black Version)	1
101	PQKM10331Z2	FRONT CABINET (for White Version)	1
102	PQKF10248Z1	CABINET COVER (for Black Version)	1
102	PQKF10248U2	CABINET COVER (for White Version)	1
103	PQBX10302Z	BUTTON (for Black Version)	1
103	PQBX10302U	BUTTON (for White Version)	1
104	PQAX3P16Y	SPEAKER	1
105	PQJT10145Z	CHARGE TERMINAL	3
106	PQSA10069Z	ANTENNA (for Black Version)	1
106	PQSA10069Y	ANTENNA (for White Version)	1
107	PQXS10073Z	KEYBOARD SWITCH	1
108	PQXA36SVC	CHARGE BATTERY	1
109	PQHR10601Z	SPACER	1
110	PQHG10504Z	SPACER	1
111	PQHX10816Z	INSULATOR	1
112	PQHG10500Z	SPACER	1
113	PQHX10792Z	SPACER	1

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
R207	ERJ3GEYJ100	10	1	C207	ECUV1H103KBV	0.01	1
R209	PQ4R10XJ105	1M	1	C208	ECUV1H101JCV	100P	1
R210	ERJ3GEYJ103	10K	1	C209	ECUV1H822KBV	0.0082	1
R211	ERJ3GEYJ332	3.3K	1	C210	ECUV1H101JCV	100P	1
R212	ERJ3GEYJ222	2.2K	1	C211	ECUV1H103KBV	0.01	1
R213	ERJ3GEYJ472	4.7K	1	C214	ECEA1CKS470	47	S 1
R214	ERJ3GEY0R00	0	1	C215	ECUV1C104KBV	0.1	1
R217	ERJ3GEYJ103	10K	1	C216	PQCUV1C474ZF	0.47	1
R218	ERJ3GEYJ103	10K	1	C217	ECUV1H222KBV	0.0022	1
R219	ERJ3GEY0R00	0	1	C218	ECEA1CKS100	10	S 1
R220	ERJ3GEYJ473	47K	1	C219	ECUV1C104ZV	0.1	1
R221	ERJ3GEYJ100	10	1	C220	ECUV1H472KBV	0.0047	1
R222	ERJ3GEYJ104	100K	1	C221	ECUV1C104KBV	0.1	1
R223	ERJ3GEYJ563	56K	1	C222	ECUV1H103KBV	0.01	1
R224	ERJ3GEYJ153	15K	1	C223	ECUV1C683KBV	0.068	1
R225	ERJ3GEYJ153	15K	1	C224	ECUV1C683KBV	0.068	1
R226	ERJ3GEYJ103	10K	1	C225	ECUV1H103KBV	0.01	1
R227	ERJ3GEYJ103	10K	1	C226	ECUV1H103KBV	0.01	1
R229	ERJ3GEYJ563	56K	1	C227	ECUV1C104ZV	0.1	1
R230	ERJ3GEYJ124	120K	1	C228	ECUV1H682KBV	0.0068	1
R231	ERJ3GEYJ104	100K	1	C230	ECUV1H333KDV	0.033	S 1
R232	ERJ3GEYJ104	100K	1	C232	PQCUV1C105ZF	1	1
R233	ERJ3GEYJ220	22	1	C233	ECUV1C104KBV	0.1	1
R234	ERJ3GEYJ223	22K	1	C234	ECUV1C104ZV	0.1	1
R235	ERJ3GEY0R00	0	1	C236	PQCUV1C105ZF	1	1
R236	ERJ3GEYJ333	33K	1	C237	ECUV1H471JCV	470P	1
R238	ERJ3GEYJ333	33K	1	C238	ECUV1H472KBV	0.0047	1
R240	ERJ3GEYJ102	1K	1	C239	PQCUV1C474ZF	0.47	1
R241	ERJ3GEYJ273	27K	1	C240	PQCUV1C105ZF	1	1
R242	ERJ3GEYJ273	27K	1	C241	ECUV1C104KBV	0.1	1
R243	ERJ3GEYJ333	33K	1	C243	ECEA0JKA331	330	1
R245	ERJ3GEYJ222	2.2K	1	C244	ECUV1C104ZV	0.1	1
R246	ERJ3GEYJ100	10	1	C246	ECEA1CKS470	47	S 1
R247	ERJ3GEYJ394	390K	1	C247	ECUV1C104ZV	0.1	1
R248	ERJ3GEYJ474	470K	1	C248	ECUV1H180JCV	18P	1
R249	ERJ3GEYJ102	1K	1	C249	ECUV1H180JCV	18P	1
R250	ERJ3GEYJ103	10K	1	C251	ECUV1C104KBV	0.1	1
R251	ERJ3GEYJ222	2.2K	1	C253	ECUV1H103KBV	0.01	1
R252	ERJ3GEYJ105	1M	1	C255	ECUV1C104KBV	0.1	1
R254	ERJ3GEYJ331	330	1	C256	ECUV1C104KBV	0.1	1
R255	ERJ3GEYJ331	330	1	C257	PQCUV1C105ZF	1	1
R258	ERJ3GEYJ104	100K	1	C258	ECUV1C104ZV	0.1	1
R259	ERJ3GEYJ104	100K	1	C259	ECUV1C104KBV	0.1	1
R260	ERJ3GEY0R00	0	1	C260	PQCUV1E104MD	0.1	S 1
R261	ERJ3GEY0R00	0	1	C261	ECUV1C104KBV	0.1	1
R262	ERJ3GEYJ102	1K	1	C264	ECST0JY106	10	1
R263	ERJ3GEYJ103	10K	1	C314	ECUV1H050CCV	5P	1
R264	ERJ3GEYJ101	100	1	L302	ECUV1H030CCV	3P	1
R265	ERJ3GEYJ101	100	1				
R266	ERJ3GEYJ102	1K	1				
R267	ERJ3GEYJ101	100	1				
R268	ERJ3GEYJ104	100K	1				
R269	ERJ3GEYJ153	15K	1				
R270	ERJ3GEYJ331	330	1				
R271	ERJ3GEYJ331	330	1				
R272	ERJ3GEYJ331	330	1				
R273	ERJ3GEYJ331	330	1				
R274	ERJ3GEYJ681	680	1				
R275	ERJ3GEYJ104	100K	1				
R276	ERJ3GEYJ330	33	1				
R277	ERJ3GEYJ104	100K	1				
R279	ERJ3GEYJ104	100K	1				
R280	ERJ3GEYJ104	100K	1				
R281	ERJ3GEYJ102	1K	1				
		(CAPACITORS)					
C203	ECEA0JK221	220	S 1				
C204	ECUV1H103KBV	0.01	1				
C205	ECUV1H103KBV	0.01	1				
C206	ECEA1CKS470	47	S 1				
RF P.C. BOARD PARTS							
PCB200	PQLZ10001Z	P.C. BOARD ASS'Y (RTL)	1				

KX-TC911-B/KX-TC911-W

This replacement parts list are U.S.A. version only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs/Set
KX-TC911-B/KX-TC911-W			
ACCESSORY PARTS			
A1	KX-TCA1-G	AC ADAPTOR	1
A2	PQJA10075Z	TEL CORD	1
A3	PQKL24Z0	WALL MOUNT BRACKET (for Black Version)	1
A3	PQKL24Y81	WALL MOUNT BRACKET (for White Version)	1
A4	PQYNTC911BR	BATTERY COVER (for Black Version)	1
A4	PQYNTC911WR	BATTERY COVER (for White Version)	1
A5	PQQW11914Z	QUICK REFERENCE GUIDE (for English and Spanish)	1
A6	PQQX11891Z	INSTRUCTION BOOK	1
PACKING MATERIALS			
P1	PQPP170Z	PROTECTION COVER	1
P2	XZB10X35A02	PROTECTION COVER	1
P3	PQPD10386Z	CUSION	1
P4	PQPN10632Z	CUSION	1
P5	PQPK12489Z	GIFT BOX (for Black Version)	1
P5	PQPK12551Z	GIFT BOX (for White Version)	1
TOOL			
ZZ1	PQZZ16K5Z	EXTENSION CORD	1
Note PQZZ16K5Z is useful for servicing (it make sevicng easy).			